PIT AND QUARRY

THE LIBRARY OF CONGRESS SERIAL RECORD
JUN 17 1943
Copy 2

JUNE, 1943

FOR 26 YEARS THE LARGEST PRODUCER CIRCULATION IN THE FIELD

LUDLOW-SAYLOR

CONTROLLED-TEMPER SUPER-LOY WOVEN WIRE SCREENS

for super-severe service

●

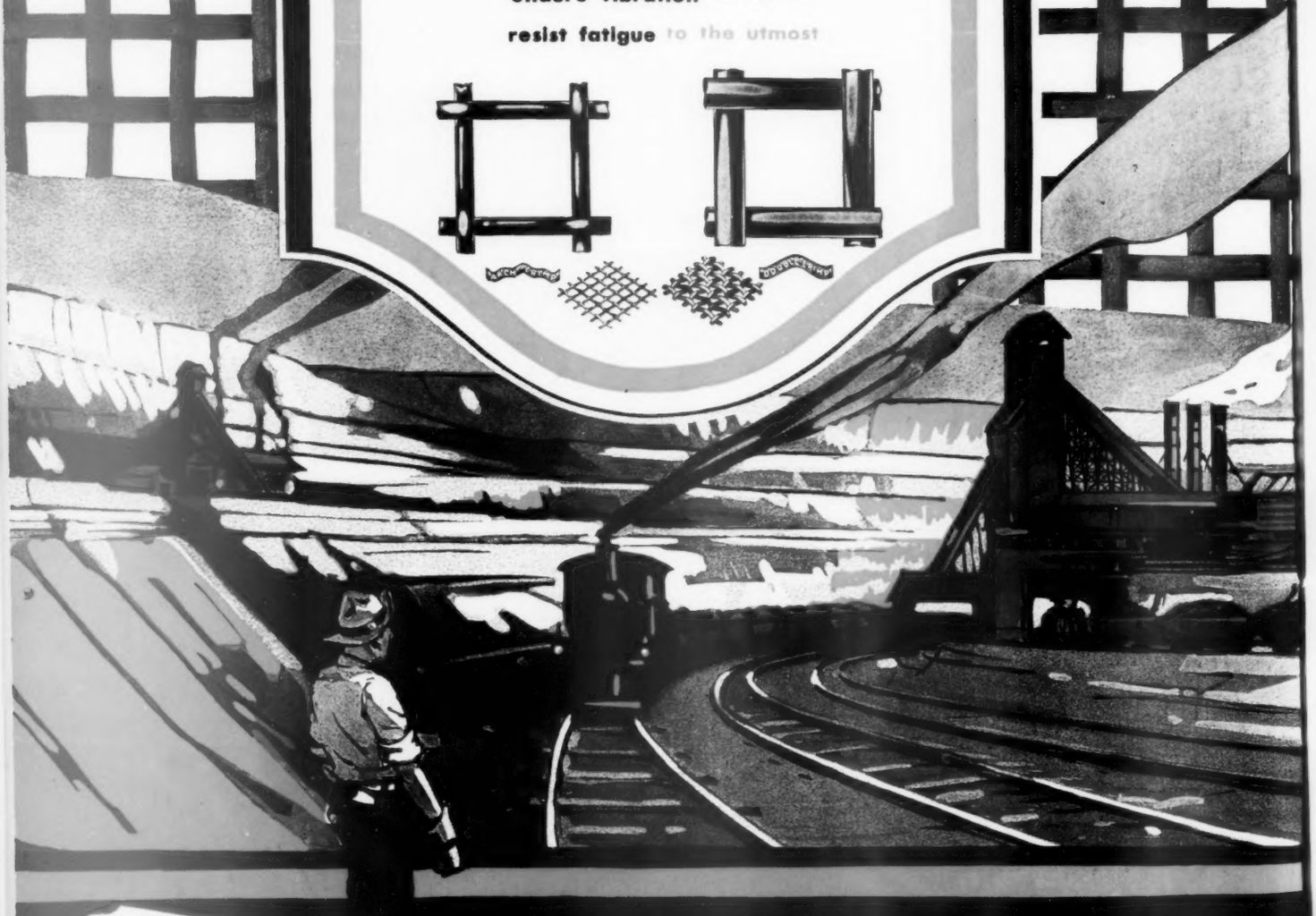
SUPER-HARD, SUPER-TOUGH, SUPER-STRONG

CONTROLLED-TEMPER SUPER-LOY WOVEN WIRE SCREENS

withstand abrasion longer—

endure vibration better—

resist fatigue to the utmost



The background at top of page shows the "Perfect" Double-Crimp Weave.

The small cuts in the center panel compare Arch-Crimp Weave and Double-Crimp Weave.

The border at foot of page shows "Perfect" Double-Crimp Steel Wire Cloth which has been hot-dip galvanized after weaving.

Samples on request.

The LUDLOW-SAYLOR WIRE COMPANY SAINT LOUIS

THE LONG-LIFE COMBINATION

PROMAL CHAINS and FLINT-RIM Sprocket Wheels

● Long after ordinary cast ferrous chain completes its normal span of service, a Promal chain usually works on and on, even though subject to adverse conditions.

Promal chains are tough under shock and strain; they are hard in the face of abrasion; they have great strength in proportion to weight and bulk.

Where the work is hard on ordinary chains, Promal chains will give you longer, lower-cost service—more dependable operation—deferred replacement needs.

Flint-Rim Sprocket Wheels resist abrasion and will last several times as long as gray iron wheels. They have fully demonstrated that they are the most durable and satisfactory cast type of tooth sprocket wheels.

For best results use them both in combination on your elevators, conveyors and slow speed drives.

LINK-BELT COMPANY

Chicago Indianapolis Philadelphia Atlanta Dallas San Francisco
Detroit Boston Los Angeles Seattle Portland, Ore. Toronto

Other offices and distributors in principal cities

8907-F

TOMORROW IS TOO LATE—BUY THAT WAR BOND TODAY

LINK-BELT CHAINS AND SPROCKETS

For Conveying and Mechanical Power Transmission

PIT AND QUARRY, June, 1943. Vol. 35, No. 12. Published monthly by the Complete Service Publishing Company, 538 South Clark Street, Chicago, Ill. Subscription price $2 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $1 additional for each year. Single copies 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1897.

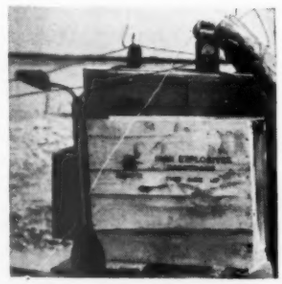
A "Grass Roots" Description of a High-Toned Word

The word is Synergism—an old-timer in the dictionary, but new to the industrial vocabulary. In the business sense, synergism means minds "clicking" together so that the net result is an idea far greater than the sum of the thoughts expressed.

Synergistic thinking has worked wonders in war production. It has been applied by companies, by groups and by individuals. Out of it has come the "big idea" that solves a problem, be it big or little—a problem of material, of process, of method.

Atlas has been practicing practical, synergistic thinking in the quarry field, especially in devising ways and means to produce better blasting results.

One bit of synergism between Atlas Technical Representatives and a quarrying customer evolved "the high line" for blasting shown in the photograph. Empty cartridge cases furnished the towers. Insulators, permanently fastened to boards, were inserted into slits made in the top box. Stones weighted down the towers against the wind.



But synergism did not stop there. Out of some hefty Synergistic thinking on the spot, suggestions came for balancing the circuits and connecting into the middle of the shot—advances in technique that resulted in better blasting.

We like to collaborate with our customers to work out the "big idea." Let us do some synergistic thinking with you on your next problem.

ATLAS EXPLOSIVES

"Everything for Blasting"

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington, Del. · Offices in principal cities · Cable Address—Atpowco

She keeps steel mills Rolling . . .

★

★

★

★

THIS little Flexomotive is a regular maid-of-all-work in a Mahoning Valley steel mill.

She does a hundred and one hauling jobs equally well—such as switching and spotting freight cars, delivering scrap, limestone and other raw material to the charging floor, moving molten metal in ladle cars, shifting ingot molds to and from pouring stations, and hauling hot slag to the dumping grounds.

Like all Plymouth Flexomotives, she is direct-driven with a powerful Cooper-Bessemer diesel—quick to accelerate and decelerate, efficient on heavy loads or light, economical in fuel consumption, clean and easy to operate.

It is because of this extreme flexibility and economy that more and more, steel mills and metal plants are swinging to diesel power—and to Cooper-Bessemer powered locomotives in particular.

Locomotive Diesels
Marine Diesels
Air and Gas Compressors

Stationary Gas and Diesel Engines for Industry

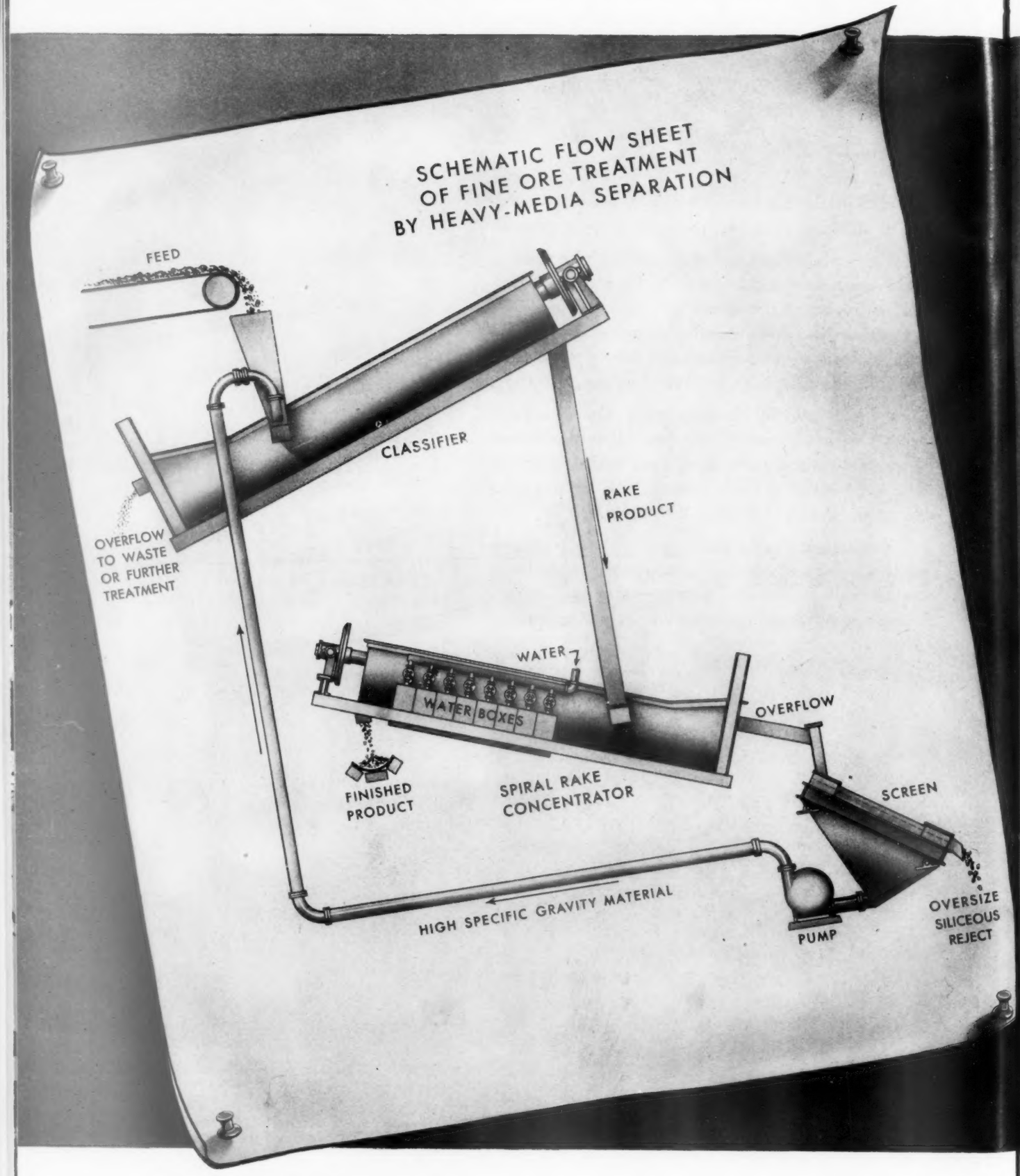
A 65-ton Plymouth Flexomotive helping an Ohio steel plant turn out more production for war. Powered by a Cooper-Bessemer diesel.

The Cooper-Bessemer Corporation

MOUNT VERNON, OHIO GROVE CITY, PENNA.

New York Washington Tulsa Dallas, St. Louis Houston Los Angeles Seattle Shreveport

New Development in Fine-Ore Treatment



AMERICAN CYANAMID COMPANY

by a Heavy-Media Separation Process

Using the fine heavy constituent of the ore as a separating medium, this new development in fine-ore treatment expands the field of Heavy-Media Separation to that part of the feed that is too fine for Heavy-Media Cone Plants but too coarse without regrinding for froth flotation. The process is also directly applicable for pre-concentrating or making a finished concentrate on ores requiring crushing to ¼" to liberate values.

Thoroughly proved by commercial use in two plants on Mesabi Iron Ore (a third is under construction and a fourth is planned for the East), pilot plant test-results in the Cyanamid Ore Dressing Laboratory indicate its applicability to fluorspar, manganese, chromium and other free-milling ores. Because the fine heavy constituent of the ore forms the separating medium, it is a low-cost process requiring minimum power, labor, maintenance and plant investment.

This new development in fine-ore treatment expands still further the scope and flexibility of application of the beneficiation processes offered by Cyanamid. Whether your ore can best be treated by a Heavy-Media Separation process alone, or by a combination of Heavy-Media Separation with chemical beneficiation by froth flotation, Cyanamid can unprejudicedly recommend the flow scheme to give highest yield at lowest cost.

Cyanamid Field Engineers are available to work with you in your mill on the development of the most efficient flow scheme for your ore. The unexcelled facilities of the Cyanamid Ore Dressing Laboratory for Chemical, Physical and Microscopical research and testing, as well as batch and continuous-unit testing of metallics or non-metallics by mechanical or by chemical beneficiation processes are at the service of the entire mining industry.

Ore Dressing Notes #12 now in preparation will describe fine-ore treatment by Heavy-Media Separation and will also contain a description of the Heavy-Media Separation Pilot Plant recently installed at the Cyanamid Ore Dressing Laboratory. A copy will be sent on request. If you have not already received Ore Dressing Notes #11 "Heavy-Media Separation Processes" for treating coarse ore, we will be glad to send a copy.

30 Rockefeller Plaza, New York, N. Y.

THIS "Cat" and "Carrimor" rig is rushing work on a 1,500,000 cu. yd. job of clearing, filling, leveling virgin acreage for the use of flying personnel for our Armed Forces. This job is typical of the many kinds of war construction work being performed with speed and skill by modern earth-moving equipment.

To assure long life and a minimum of service interruptions not only of "Cats" and "Carrimors," but of trucks, shovels, bulldozers, and other equipment, contractors everywhere are lubricating the bearings of their equipment with *Texaco Marfak*.

Texaco Marfak provides a tough, adhesive-cohesive film that clings to metal, resisting the severest rain and road splash.

The reason behind *Marfak's* longer-lasting protection is this – while it liquefies inside a bearing, providing liquid film lubrication, it maintains its original consistency at the outer edges, thus sealing itself in while sealing out dirt, grit, water.

For wheel bearings, use *Texaco Marfak Heavy Duty*. It stays in the bearings – off the brakes – winter and summer.

So effective have Texaco lubricants proved that they are definitely preferred in many other important fields, a few of which are listed opposite.

A Texaco Lubrication Engineer will gladly co-operate in the selection of the most suitable lubricants for your equipment. Just phone the nearest of more than 2300 Texaco distributing points in the 48 States, or write: The Texas Company, 135 East 42nd Street, New York, N. Y.

TEXACO

REG. T. M.

TEXACO

TUNE IN FRED ALLEN EVERY SUNDAY NIGHT—CBS

LANDING TOMORROW

THEY PREFER TEXACO

★ More stationary Diesel horsepower in the U. S. is lubricated with Texaco than with any other brand.

★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.

★ More locomotives and railroad cars in the U. S. are lubricated with Texaco than with any other brand.

★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.

★ More buses, more bus lines and more bus-miles are lubricated and fueled with Texaco than with any other brand.

MARFAK

HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY

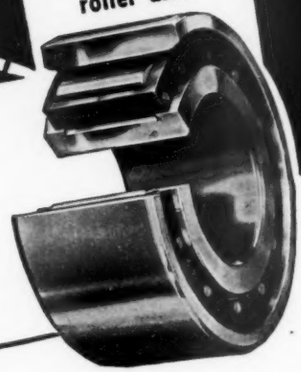
This Basic Bearing Principle

cuts the production hours lost through machine failures

ALL RADIAL loads carried at RIGHT ANGLES to the roller axis.

NO OBLIQUE RESULTANTS

ALL THRUST loads carried at RIGHT ANGLES to the roller axis.



ROLLWAY

RIGHT-ANGLE ROLLER BEARINGS

With machines running continuously to maintain war schedules . . . with no cooling-off period . . . the life of the ordinary bearing is sharply reduced. Lost man-hours pile up while machines shut down for bearing maintenance and repairs. What is the remedy? It's really simple. Just reduce the magnitude of the load and the complexity of the stresses *per bearing*.

Do it easily and economically the Rollway Right-Angled way. These heavy-duty, precision bearings stand up longer and afford greater carrying capacity in given dimensional limits. That's because they split the load into its two simplest components of *pure radial* and *pure thrust*, carrying each of these on a separate bearing assembly. Every load is supported at right angles to the roller axis. There are no oblique resultants to complicate design, no wedging or pinching of rollers, less rubbing friction and wear-back of the roller heads.

For longer bearing life, more efficient performance and more economical maintenance . . .

FOLLOW THIS BASIC BEARING PRINCIPLE

- All radial loads carried at right angles to the roller axis.
- All thrust loads carried at right angles to the roller axis.

Standard Sizes for Most Applications

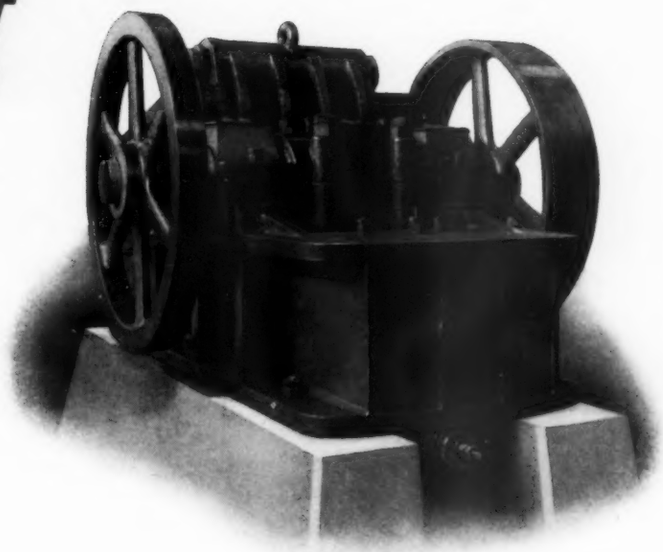
S.A.E. or American Standard metric dimensions and tolerances in a wide range of sizes and types assure low cost and ready availability for most applications without special design. Let our engineers recommend the types best suited to your needs. Send us your original design or change-over sketch for free, confidential bearing analysis. No obligation.

ROLLWAY BEARING COMPANY, INC., SYRACUSE, NEW YORK

BUILDING HEAVY-DUTY BEARINGS SINCE 1908 — BEARINGS

TRAYLOR

Type H Blake Jaw Crusher



WE BUILD

Rotary Kilns
Rotary Coolers
Rotary Dryers
Rotary Slakers
Scrubbers
Evaporators
Jaw Crushers
Gyratory Crushers
Reduction Crushers
Crushing Rolls
Grinding Mills
Ball Mills
Rod Mills
Tube Mills
Pug Mills
Wash Mills
Feeders
Rotary Screens
Elevators

The Traylor Type H Jaw Crusher is a modern, highly improved form of the Blake machine. The frame is made of heavy steel plate, full-welded throughout by our original methods. The Pitman Shaft Bearings are separate, and the simplified and improved Swing Jaw Suspension functions to save wear and power.

The Type H machine is built in eight sizes from 8" x 12" to 30" x 42" and thus it is applicable to almost any ordinary requirement.

The Type H Crusher will crush more stone to smaller size than older Blake crushers, without any increase in the horsepower consumed, because it is fitted with CURVED JAW PLATES, which employ the principle of the Bell Heads and Curved Concaves that have made the Traylor Reduction Crushers leaders in the field.

For instance, using a size 24" x 36" machine as an example,—an ordinary Blake crusher fitted with the old design straight jaw plates will produce about 50 T.P.H. at its smallest practicable setting (3") using 75 H.P., whereas the Type H using the same amount of power will crush about 68 T.P.H. to 1¾". Moreover, the wearing metal consumed per ton of output is measurably less in the Type H, and the product contains less waste fines and is more cubical in character, both because the Curved Jaw Plates eliminate all choking.

Investigate the Type H Blake Jaw Crusher. You can still secure one, if your product serves a sufficiently critical purpose. Our representative is available at any time, for consultation. Write us!

SEE BULLETIN 2105

TRAYLOR

ENGINEERING & MANUFACTURING CO.

MAIN OFFICE AND WORKS — ALLENTOWN, PENNA., U.S.A.

NEW YORK CITY	CHICAGO	SALT LAKE CITY	LOS ANGELES	SPOKANE
3416 Empire State Bldg	2051 One La Salle St. Bldg.	101 West Second South St.	919 Chester Williams Bldg.	S. 2707 Rhyolite Rd.

B. C. EQUIPMENT CO., LTD.
551 Howe St., Vancouver, B. C.

Export Department — 104 Pearl St., New York City. Foreign Sales Agencies: London, Lima, Rio de Janeiro, Buenos Aires, Santiago, Autofagasta, Oruro, Montevideo

Somewhere south of the equator a sturdy 1-ton Mack does ground duty for one of Pan American Airways' famous flying clippers . . . Sketched by Peter Helck.

LITTLE CHIP OFF A RUGGED OLD BLOCK . . .

You don't have to work long with trucks—either as owner or driver—to see why the admiring phrase, "Built like a Mack truck" has established itself in America's language. On the heavy punishing jobs it has been known for years that a Mack's your *best* truck in the end because it's *more* truck to begin with. The performance of little Mack pick-up and delivery trucks in wartime transportation is proving that every Mack, no matter what size, is truly a chip off the old block.

Mack Trucks, Inc., Long Island City, N. Y. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J. Factory branches and dealers in all principal cities for service and parts.

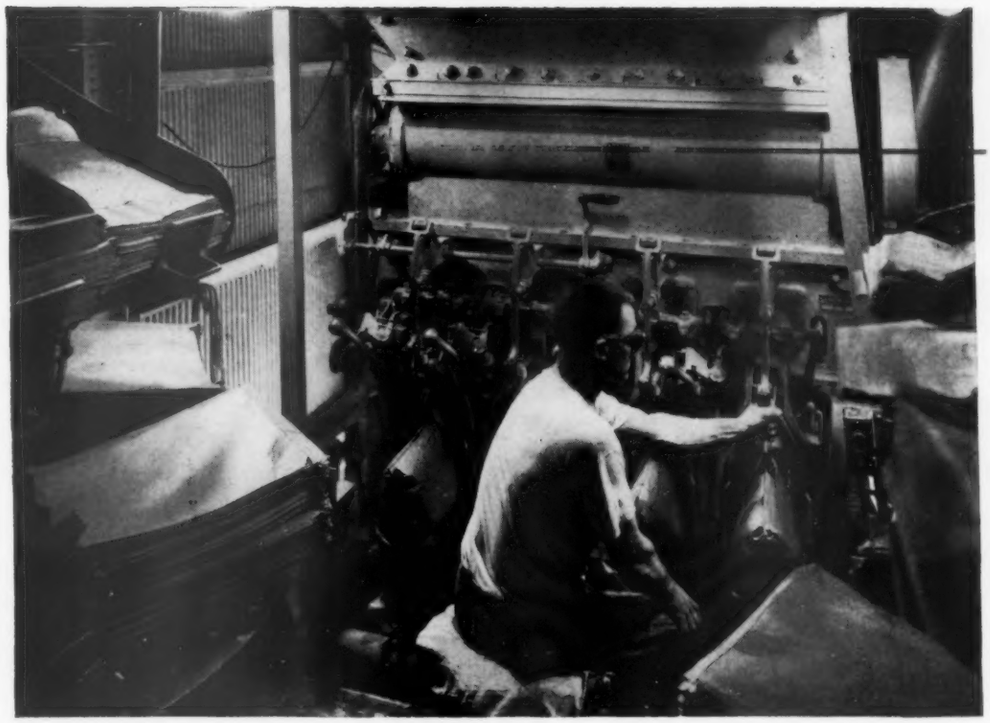
Mack

TRUCKS
FOR EVERY PURPOSE
ONE TON TO FORTY-FIVE TONS

BUY U. S. WAR BONDS

IF YOU'VE GOT A MACK, YOU'RE LUCKY...IF YOU PLAN TO GET ONE, YOU'RE WISE!

2,068 POUNDS OF CEMENT packed per minute



by this St. Regis valve pack system

As easily as you shift gears in your automobile, one operator packs one ton of cement in one minute using St. Regis Packer and the Multiwall Valve Paper Bag. This is accomplished by the self-closing feature of the St. Regis Valve Bag, the rapid production of the packer and the elimination throughout the whole packing process of lifting filled bags.

St. Regis Multiwall Paper Bags play an important part in this operation. Through years of experience in packing rock products, St. Regis Paper Company has perfected Multiwall Paper Bags which protect the product in transit and storage and assure the maximum in packaging efficiency and economy.

St. Regis MULTIWALL PAPER BAGS

MULTIPLY PROTECTION • MULTIPLY SALEABILITY

ST. REGIS PAPER COMPANY

TAGGART CORPORATION • THE VALVE BAG COMPANY

NEW YORK: 230 Park Avenue

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Offices also at: Baltimore, Md. · Birmingham, Ala. · Dallas, Tex. · Denver, Colo. · Franklin, Va. · Los Angeles, Calif. · Nazareth, Pa. · New Orleans, La. · San Francisco, Calif. · Seattle, Wash. · Toledo, Ohio

WORK IN INDUSTRY

All forces of the United Nations must be fully armed and equipped to win the fight! A continuous flow of supplies must keep up with the advancing armies. War and industry are inseparable. War consumes tremendous quantities of materials and equipment. And industry must supply these needs. Victory in battle and Victory in industry call for a far greater cooperative effort than ever before. Industry can assure Victory through Work! Fighting Men need Working Men!

Gar Wood Industries, Inc., knows the only job now is to win the war—to keep producing more every day—to keep pace with the urgent demand for more production to insure Victory.

Gar Wood Industries, Inc., has been rendering continuous service for more than a quarter of a century—in peacetime and in wartime—and was one of the first manufacturers to convert its various plants into war production. Today all Gar Wood plants are turning out war equipment. Included among the diversified Gar Wood products are Gun Mounts, Barrage Balloon Winches, Wire Reels, Troop and Cargo Bodies, Mobile Machine Shop Bodies, Truck and Trailer Equipment, such as Dump Bodies and Hydraulic Hoists, Winches, Cranes, Derricks, Refueling Tanks and Water Tanks—Road Machinery, including Scrapers, Bulldozers, Roadbuilders, Tamping Rollers and Rippers—also Heating Equipment and fast, powerful Boats for the Army and Navy.

One of Gar Wood Industries' latest and timely contributions is the automatic, all-enclosed Load-Packer, outstanding for its conservation of men, trucks, tires and gasoline by reason of its hydraulic compressing action packing greater loads of garbage and rubbish than any other type of collection body.

Write for illustrated literature about these wartime products.

OUR ONLY JOB now IS TO

WIN THE WAR

Protect Freedom
BUY WAR BONDS

GAR WOOD INDUSTRIES, INC., Detroit

They last longer, perform better with Gulf Quality Lubricants and Fuels

Gulf products make a big difference on today's tough jobs

THERE'S a double squeeze today on America's construction men—every job is marked rush, and new equipment and spare parts are hard to get. So these are the orders of the day on every construction project: *make equipment operate more efficiently, last longer!*

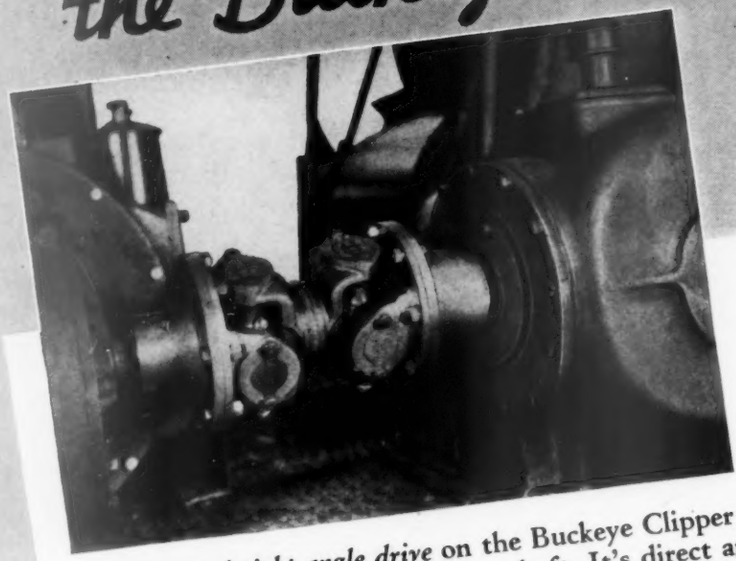
Here's how to get effective help in carrying out these orders on *your* jobs: Call in a Gulf Service Engineer and ask him to recommend the proper type and grade of lubricants and fuels for each piece of equipment you are using. From Gulf's complete line, he will select lubricants with greater stability and lasting qualities—tough filmed lubricants that provide maximum protection to your equipment under every operating condition. And, he will recommend fuels that insure top-notch equipment performance.

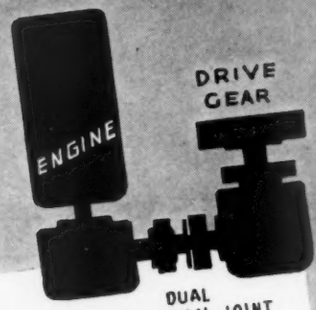
Join now the hundreds of leading contractors who have standardized on Gulf quality lubricants and fuels as a job insurance measure. Write or phone your nearest Gulf office today.

GULF

GULF OIL CORPORATION
GULF REFINING COMPANY
GULF BUILDING · PITTSBURGH, PA.

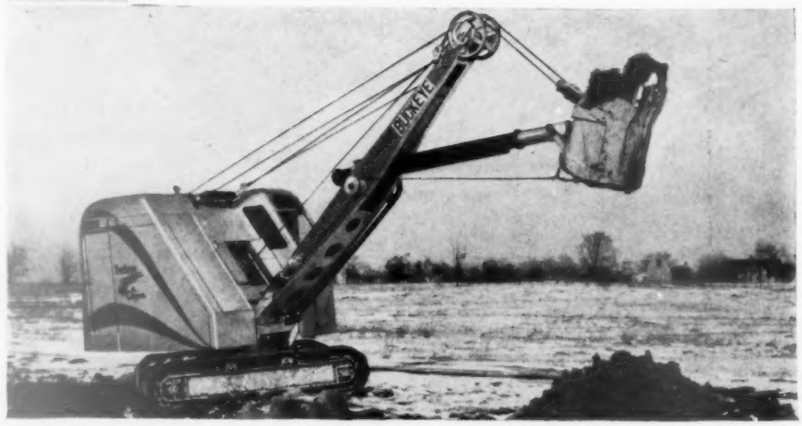
This drive helps "Wean" the Buckeye Clipper Shovel!





The *dual right angle drive* on the Buckeye Clipper provides a smoother flow of power from engine to drive shaft. It's direct and positive like the differential of a tank, truck or car. It's easier on the engine. Acceleration is smooth and fast. Result: *More yards daily with less gas or distillate.*

Fuel conservation is urgent today—after the war Clipper owners can pocket the savings that result from lower fuel requirements. Get the rest of the story in "The Age of Clippers," sent on request.



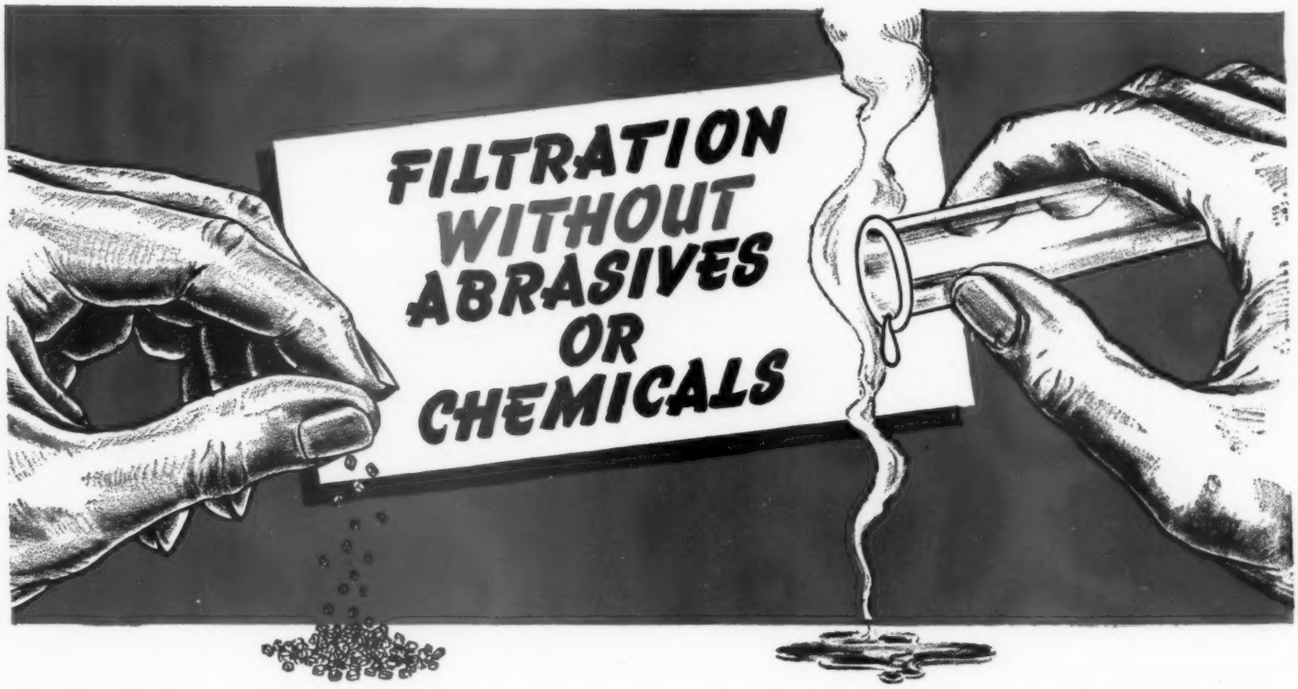
Buckeye
Traction Ditcher Co.
Findlay, Ohio

Wars demand scrap.
Invest in War Bonds.
No laying down on jobs.

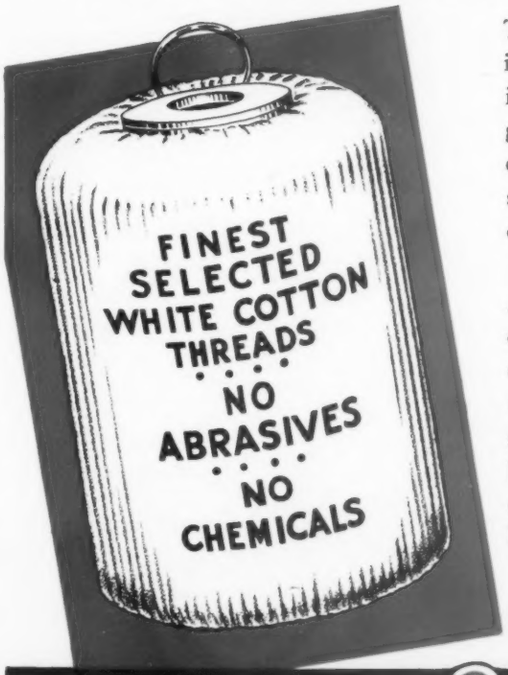
50 YEARS OF PROGRESS BUCKEYE 1893 1943

Buckeye

CONVERTIBLE SHOVELS, TRENCHERS, BACKFILLERS, TRACTOR EQUIPMENT, CRANES AND POWER CONTROL UNITS



The Oil Line is the Lifeline of Your Motorized Equipment . . . Provide Safe, Economical Lubrication with WIX Filterefils



There's *nothing* in a WIX Filterefil *but* sludge-hungry filtering efficiency . . . no chemicals to break down the additives in today's heavy duty, compounded lubricating oils . . . no grit or mineral substances to get into oil lines and score cylinder walls, pistons and bearings. WIX Filterefils are simply and frankly the sound means of maintaining *visibly* clean oil at minimum cost and for longer periods.

WIX Filterefils are engineered to do a superlative job on ALL filter protected, power equipment. There are specially designed units not alone for lube lines but all manner of fuel service. In fact, there's a size and type precisely designed to suit whatever filter replacements your gasoline and Diesel engines require. Whether it's a truck, tractor, bulldozer or stationary engine you can enjoy maximum oil efficiency and rock-bottom economy with WIX today. Moreover, we can deliver them NOW! Get the facts.

wix
TRADE MARK

FILTEREFIL

THIS CARTRIDGE SAVES METAL FOR VITAL WAR NEEDS
KEEP 'EM ROLLING WITH
wix

ACCESSORIES CORPORATION, GASTONIA, N. C.

Warehouses: NEW YORK • CHICAGO • KANSAS CITY, MO. • MINNEAPOLIS • LOS ANGELES • SAN FRANCISCO
CANADIAN FACTORY: WIX ACCESSORIES CORP. LTD., 161 BAY ST., TORONTO, ONTARIO

Old friend arrives . . . Thanks to you

When you're halfway around the world, trying to finish an important job, it's mighty pleasant to greet an old and very helpful friend you used to work with.

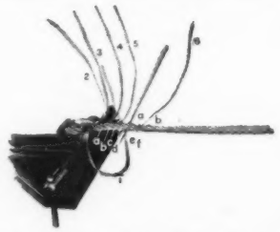
Back home, in scores of industries, the men now on palm-fringed shores learned an affectionate respect for the dependability of Wickwire Rope. Now when stout wire rope is more than ever a matter of life and death, the sight of a reel of *Wickwire* Rope brings double cheers.

These buddies of ours know that *you* need Wickwire Rope, too—to help in your speeded-up *production* of lots of things for them. So they're grateful when you make each length you now have last longer, so that more Wickwire Rope can be used to equip the Liberty Ships, and to send overseas.

But when you do need more of this friendly Wickwire Rope to help maintain your war-production pace, won't you please order it *without* reels, if lengths will permit, so that handier reels can be spared for the boys out there? Wickwire Spencer Steel Company, 500 Fifth Avenue, New York.

• • •

Wickwire Spencer was the first manufacturer in all New England to be awarded the Maritime M and Victory Fleet Flag for outstanding production accomplishments!



DO YOUR MEN KNOW HOW?

Our free book "Know Your Ropes" pictures the best ways to splice, attach sockets, etc. Also shows the right and wrong ways to use wire rope. In the hands of new men (and even old-timers) it can help you make your present wire rope last longer. Send for a free copy.

SEND YOUR WIRE ROPE QUESTIONS TO WICKWIRE SPENCER

WICKWIRE ROPE

Sales Offices and Warehouses: Worcester, New York, Chicago, Buffalo, San Francisco, Los Angeles, Tulsa, Chattanooga, Houston, Abilene, Texas, Seattle. Export Sales Department: New York City

WISSCO PRODUCTS

6-DH-691 Buda Diesel powers this dragline, feeding the crusher at the Vanaken Sand & Gravel Company plant near Portland, Ore.

with BUDA *Diesel Power!*

THRIFTY, reliable BUDA Diesel power is a steady helper to the man who must get the *most* out of precious labor, equipment and time today. And, because long trouble-free life is designed and built into every part, these rugged engines will be contributing their cost-cutting performance to the competitive peacetime days ahead.

Steady, low-cost power for the Southeastern Portland Lumber Mills' crusher is provided by this husky 6-DH-691 Buda Diesel, at work in Mt. Hood Park

Those who can't afford to waste time or fuel —who want to invest in power that *lasts*— are turning to BUDA. Hundreds of BUDA Diesels are now at work on:

Shovels	**Crushers**	**Carry Scrapers**
Trucks	**Washing Plants**	**Draglines**
Locomotives	**Conveyors**	**Generators**
Pumps	**Drills**	**Compressors**

Write for complete information on the BUDA line of Diesel, gasoline, natural gas and butane engines—from 20 to 250 hp.

THE BUDA COMPANY
HARVEY (Chicago Suburb) ILLINOIS
GASOLINE and DIESEL ENGINES—15 to 250 H. P.

BUDA ... for MORE HORSEPOWER HOURS per DOLLAR

FOR UNCLE SAM'S

War Birds in Alaska

TELSMITH

Portable Crushing-Screening Plants

★ Uncle Sam never leaves his war birds out on a limb — his planes must have bases—flying fields with runways, taxi strips and aprons.

They're being built — for defense in Alaska, for offense in Africa—all over the world. And much of the equipment that produces the aggregate for them is Telsmith built. And Telsmith knows how to build it. That's Telsmith's regular business, and has been *for years.*

Look at this Telsmith 36-A Portable Crushing-Screening Plant shown here in active service—helping to build flying fields for Uncle Sam's war birds in Alaska. You'd know the contractors, if we could mention the name.

It can be told, however, that this portable, like all Telsmith plants, is doing a consistently good job and doing it fast.

Although almost all current production of Telsmith Portable Plants, Telsmith Crushers and other equipment are going to Uncle Sam for use by the armed forces overseas—Telsmith Equipment is available for contractors doing war work. *Write for Bulletin P-15.* P-6

SOMEWHERE IN ALASKA — Handling hard, abrasive, volcanic gravel, this Telsmith 36-A Portable Crushing-Screening Plant is shown (*top*) making sand for airplane runways and landing strips. Sand capacity: 50 cu. yds. an hour; (*bottom*) producing 1¼" aggregate for base coarse at average rate of 100 cu. yds. hourly.

SMITH ENGINEERING WORKS, 504 EAST CAPITOL DRIVE, MILWAUKEE, WISCONSIN

Cable Addresses: Sengworks, Milwaukee—Concrete, London

Room 1604—50 East 42nd St. New York City
211 W. Wacker Drive Chicago, Ill.
713 Commercial Trust Bldg. Philadelphia, Pa.
19-21 Charles St. Cambridge, Mass.
G. F. Seeley & Co. Toronto, Ont.
Mines Eng. & Equip. Co. San Francisco—Los Angeles
Brandeis M. & S. Co. Louisville, Ky.
Charleston Tractor & Eqpt. Corp. Charleston, W. Va.
Roanoke Trac. & Eqpt. Co. Roanoke, Va.
Clift L. Priester 911 S. 3rd St., Memphis, Tenn.
Wilson-Weesner-Wilkinson Co. Knoxville and Nashville, Tenn.

THE *Punch* OF STEAM POWER

Lange Bros., Tehachapi, Cal., here hurry clean-up work with the 2-Cycle Diesel at Quatal Canyon Gypsum Quarry.

●

The way it purrs in tough going, smoothly, quietly with heavy loads . . . the way it easily handles these big loads with little or no shifting of gears . . . the way it quickly picks up top speed — the 2-Cycle Diesel reminds you of steam power . . . about as close a comparison as you can make with this modern power! No other Diesel tractor performs like it! Handles your stripping, roadbuilding, cleaning-up, hauling and moving of equipment at a new low in cost . . . a new high in speed. Starts instantly, too — no need to let it idle when not in use. Has the stamina to work thousands of tough hours without babying and constant attention, without overhaul or major repairs. Get all the facts on this new kind of Diesel power! Write for literature.

ALLIS-CHALMERS, TRACTOR DIVISION, MILWAUKEE, U. S. A.

ALLIS-CHALMERS

2-CYCLE DIESEL . . THE *Modern* POWER

BURYING THE EMPIRE STATE

over 30,000,000

Two of the Cedarapids Morok Plants producing base material for airports for the Contractors Service Corporation.

BUILDING *with*

Cedarapids MOROK PLANTS

Built by IOWA

TONS

for VITAL DEFENSE JOBS

all produced by

CONTRACTORS SERVICE CORPORATION

Camp Hill, Pa.

THREE million, two hundred ninety two thousand, two hundred and seventy six tons of aggregate! Think that over! That's the output of the Cedarapids Morok plants of the Contractors Service Corporation of Camp Hill, Pa. Here's enough aggregate to bury the 1250 ft. height of the Empire State Building. All of this tremendous output went into seventeen vital defense projects including such jobs as Chambersburg, Pa., which alone involved over a million tons. The output was accomplished in two seasons despite the sixteen moves that the many projects involved—over a million tons the first season—over two million tons the second season!

It is figures like this that we want you to remember about Cedarapids. Such tonnage as this isn't secured with transportation delays, erection difficulties or "down time" on the job. In output figures of this kind, lies your assurance of the proved design of Cedarapids equipment.

There is a full range of Cedarapids plants for every output or material problem. No matter what you are considering if it has to do with aggregate reduction and preparation, call Iowa first. Come to Headquarters for Aggregate producing equipment.

IOWA MANUFACTURING COMPANY, Cedar Rapids, Iowa

This is the

FIRST STEP IN MAKING SYNTHETIC RUBBER!

A LINK-BELT SPEEDER HANDLES MATERIALS THAT WILL BUILD A PLANT

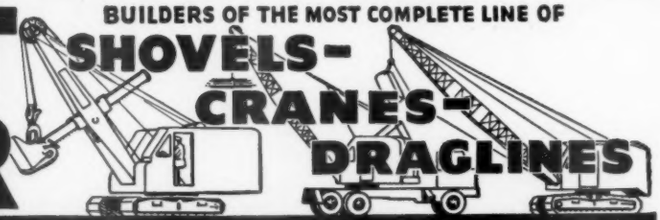
The picture shows a 1½ yard Link-Belt Speeder clam shell feeding a batching plant that supplies 400 yards of ready-mixed concrete each 10-hour day. The concrete is being used in the construction of a giant synthetic rubber plant . . . This is just another example of the vital way in which dependable, trouble-free Link-Belt Speeder Machines are being used to speed up wartime construction work.

9108

LINK-BELT SPEEDER

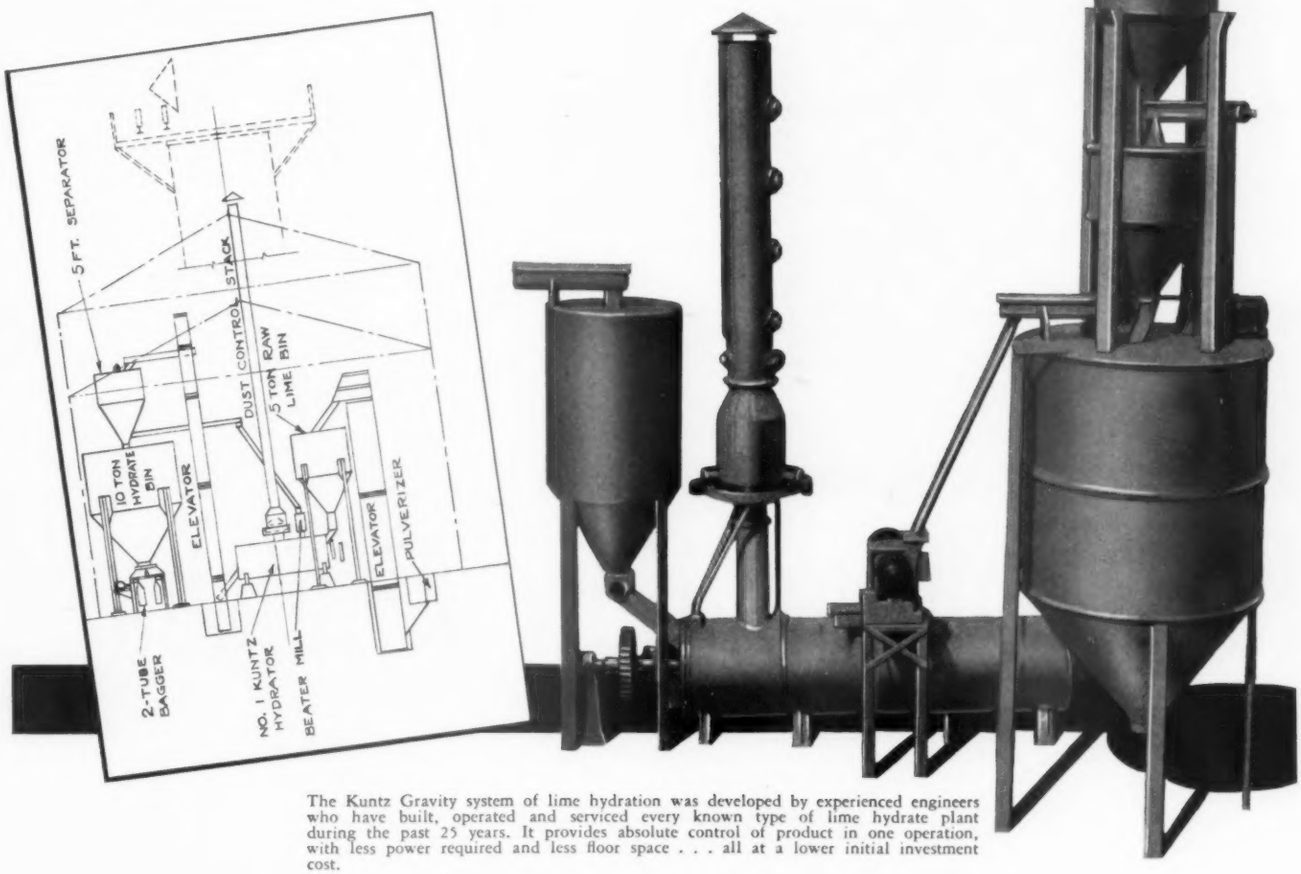
BUILDERS OF THE MOST COMPLETE LINE OF

SHOVELS–
CRANES–
DRAGLINES



LINK-BELT SPEEDER CORPORATION, 301 W. PERSHING ROAD, CHICAGO, ILL.
(A DIVISION OF LINK-BELT COMPANY)

IT'S GOOD MATHEMATICS!



The Kuntz Gravity system of lime hydration was developed by experienced engineers who have built, operated and serviced every known type of lime hydrate plant during the past 25 years. It provides absolute control of product in one operation, with less power required and less floor space . . . all at a lower initial investment cost.

Yes, it's good mathematics. It's good selling too, to have a more uniform, higher quality lime product. Both of these are features of the Kuntz gravity system of lime hydration.

The average lime hydrate plant equipped with a Kuntz system will save approximately $1.50 per ton because patented dust control eliminates all loss of lime fines. This patented feature also utilizes the heat of hydration to heat the water applied to the hydrator.

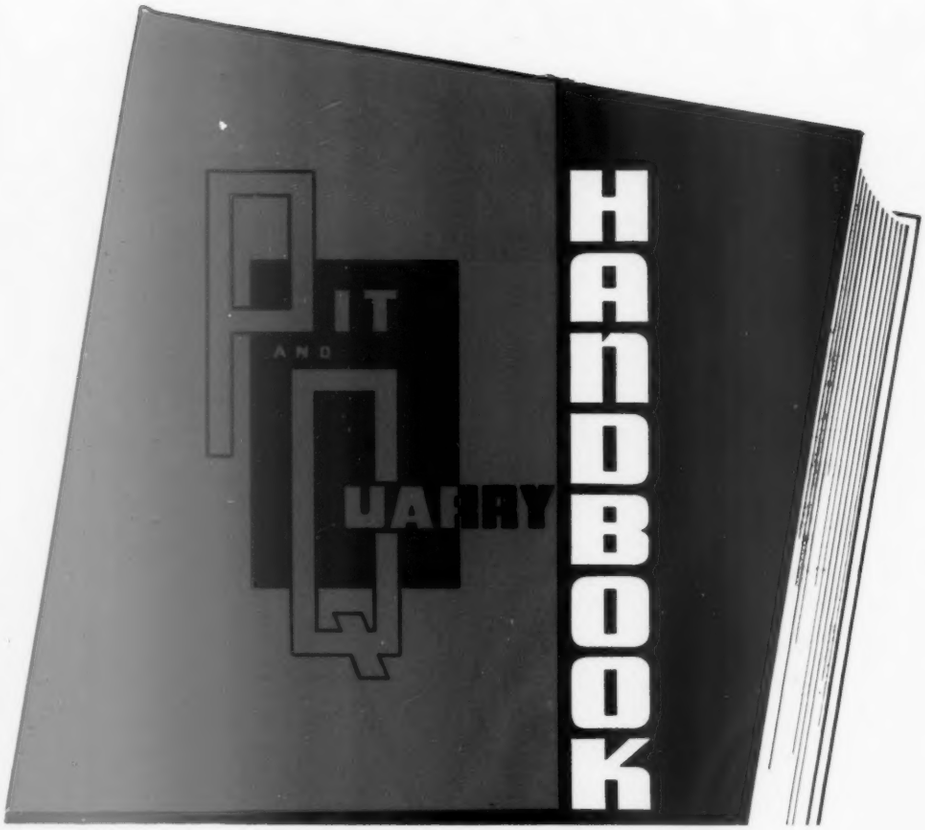
Operational features are these:

Our plan of hydration and separation makes it possible to prepare marketable hydrates to meet more exacting specifications, even with lime having as high as ten per cent impurities and insolubles. Multiple classification as to fineness and purity are prepared in one operation. The pure atmosphere of the Kuntz hydrator provides complete association of lime and water. Elements not CaO or MgO are immediately removed by the initial breakdown of the lime through a patented dam and sump collecting device.

The Kuntz gravity system of lime hydration and lime dust control can be applied to any type of hydrate plant. Operation may be either batch or continuous. It is the only automatic, one-man operated system, with absolute control of quality and uniformity of product known today . . . it costs less to install and to operate. Why not write our engineers today for more complete details?

LIME & HYDRATE PLANTS CO.

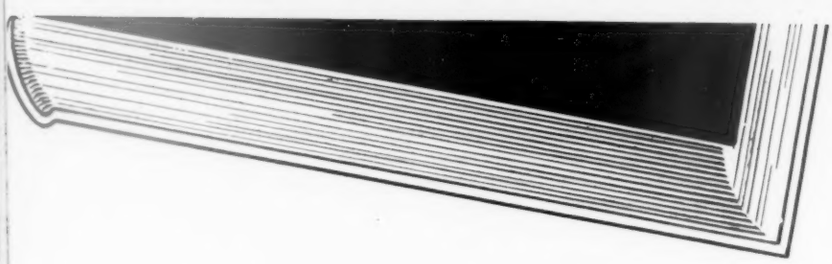
Associates McGANN MFG. CO., INC. *York, Pa.*



An Indispensable Tool For Both Operator and Supplier of Equipment

The pit-and-quarry industries, in providing important basic raw materials, bear a large responsibility for the success of America's war effort. For the operator, the revised Technical Section of the 1943 Handbook provides a ready answer for many of his operating problems. For the concern supplying him with the tools and machinery necessary to produce his materials, the 1943 Directory Section supplies an accurate, up-to-the-minute list of all known producers of nonmetallic minerals and their products. Each new listing has been carefully checked for accuracy. Previous listings have been revised and brought up to date. Inactive firms have been eliminated.

1943 Edition Now Available



Directory Section listings appear two ways—(1) alphabetical by companies, (2) geographical by plants. You get company names, officers, location of plants, size or capacity, and the names of the men who do the buying. Choose the complete Handbook and Directory . . . or the convenient, flexibly-bound Directory alone. Order NOW and get one of the first copies off the presses. Use the handy coupon below.

- 820 PAGES
- 28 CHAPTERS
- 15,000-NAME DIRECTORY
- COMPLETELY INDEXED
- AUTHORITATIVE

Pit and Quarry,
538 S. Clark St., Chicago, Ill.

Date.....

Please send.....copies of the 1943 HANDBOOK ($10.00 per copy)

Please send.....copies of the 1943 DIRECTORY ($10.00 per copy)

☐ Check enclosed.....

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Company.....

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MARION'S FIRST INTEREST IS TO WIN THIS WAR . . .

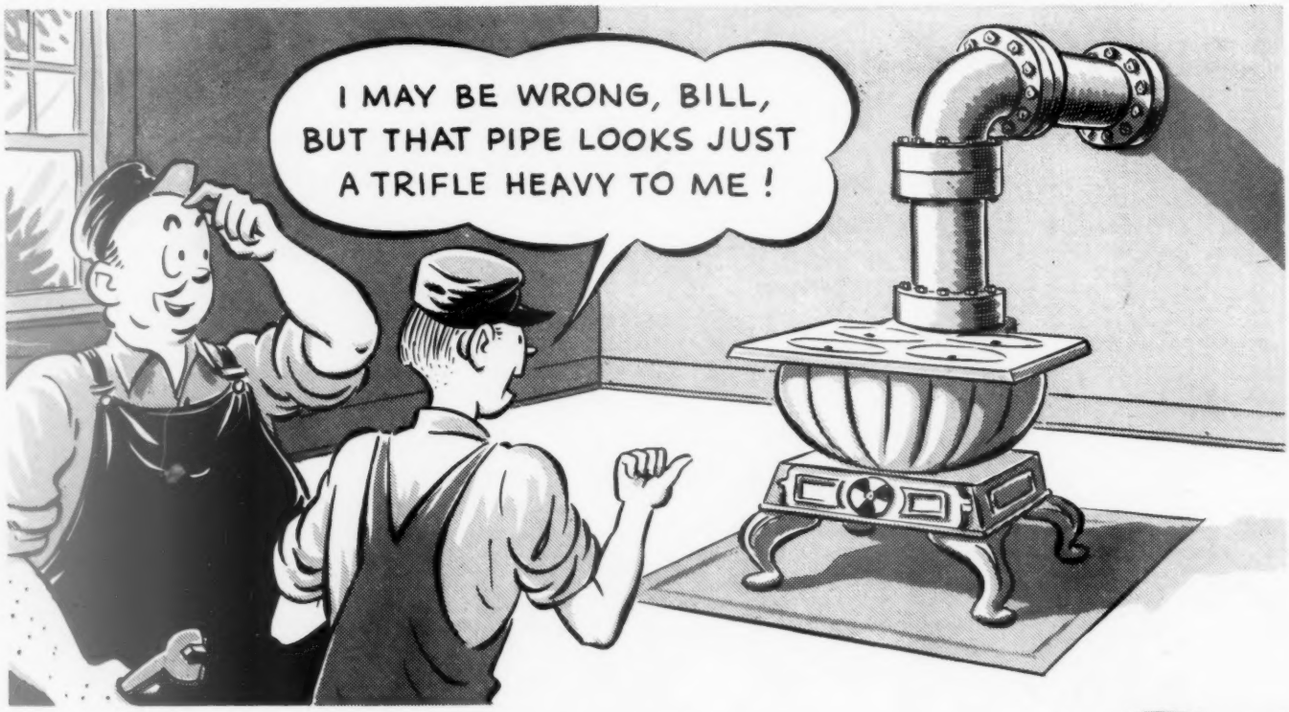
What the Bill of Rights means to our fighting men is summed up in recent victories in every theatre of war. What it means to Marion is reflected in the continuous stream of Marion machines rolling off the assemby lines . . . the ever-increasing production schedules . . . the extra speed, stamina and dependability Marion engineers are building into these machines . . . the remarkable records of performance wherever they are employed. This is Marion's answer to those who would destroy our Bill of Rights . . . Marion's way of helping to win the war as quickly as possible.

THE MARION STEAM SHOVEL CO., Marion, Ohio.

MARION

SHOVELS ★ DRAGLINES ★ CLAMSHELLS
CRANES ★ PORTAL CRANES ★ WALKERS

WORKING FOR VICTORY: DIGGING—Coal • Magnesium • Iron Ore • Copper Ore • Bauxite • Manganese • Nickel Molybdenum • Sand and Gravel • Clay. MATERIAL HANDLING—Shipbuilding and Cargo Loading. BUILDING—Airports • Ordnance Plants • Army Camps • Marine Bases, etc.



Industry sometimes makes the same error—

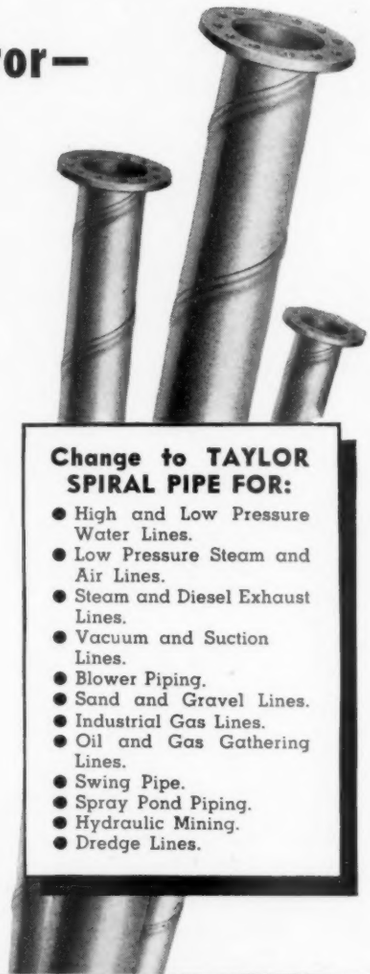
THIS may be something that can happen only in a cartoon. But in real life the same *kind* of mistake is made every time the pipe selected for any given service is heavier than it need be.

Suppose, for instance, a job comes up in your plant calling for 8-inch pipe. It probably wouldn't be piping up a stove, but if it were you would use stove pipe . . . because stove pipe always goes with stoves. On the other hand if that 8-inch pipe were for high pressure you would carefully select pipe of the proper wall thickness . . . because careful calculation goes with extreme conditions.

But if the requirement fell in the broad middle zone—if it simply involved water, gas, air or exhaust steam—isn't it a fact that your first thought would be just plain 8-inch pipe, meaning "Standard Thickness" pipe? If that was your *final* thought you would be using pipe which has a rated bursting strength of more than 3000 lbs. per sq. inch!

The point is that Taylor Spiral Pipe covers this great middle ground where pipe size—rather than pipe rating—too often rules selection. Admittedly Taylor Spiral is too light for extreme conditions, but on the other hand it's just about right for a large percentage of the requirements ordinarily assigned to standard pipe. It weighs only about half as much as the heavy pipe it replaces; costs, in most cases, about half as much installed.

So when you use Taylor Spiral Pipe you not only save dollars; you also save steel. Switching to Taylor Spiral Pipe for services like those listed here is made easy by the complete range of sizes and wide variety of fittings. Thicknesses range from 18 to 6 gauge; sizes from 4" to 42"; joint lengths up to 40 ft. All types of end joints and couplings, all kinds of fittings and specials or fabricated assemblies, are produced by Taylor Forge, assuring a complete service and undivided responsibility.



Change to TAYLOR SPIRAL PIPE FOR:

- High and Low Pressure Water Lines.
- Low Pressure Steam and Air Lines.
- Steam and Diesel Exhaust Lines.
- Vacuum and Suction Lines.
- Blower Piping.
- Sand and Gravel Lines.
- Industrial Gas Lines.
- Oil and Gas Gathering Lines.
- Swing Pipe.
- Spray Pond Piping.
- Hydraulic Mining.
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TAYLOR FORGE & PIPE WORKS, General Offices & Works: Chicago, P. O. Box 485
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TAYLOR *Spiral* PIPE

Don't
WASTE MAN-HOURS
AND CRITICAL MATERIAL
Building Special Enclosures

...there's a STANDARD G-E combination starter to meet every operating condition

CORROSION-RESISTANT

These starters (Type 8) are made in two forms—one for corrosive atmospheres and one for hazardous locations. All their arcing parts and terminals (for use in hazardous locations) are at least six inches under oil.

GENERAL-PURPOSE

The Type 1 enclosure is suitable for general-purpose, indoor applications where atmospheric conditions are normal.

DUST-TIGHT

The Type 5 enclosure is for use in steel mills, cement mills, and other locations where the dust content of the atmosphere is so heavy as to make a dust-tight case desirable. The cases are of heavy sheet metal, equipped with heavy gaskets, clamping bolts, and wing nuts.

FOR HAZARDOUS LOCATIONS

The Type 7 case for Class 1, Group D, locations is made of cast, high-strength alloy. These starters can withstand internal explosions. The flanges, which are securely bolted on all sides, are ground to tolerances that will not permit the escape of hot gases.

WATERTIGHT

The Type 4 case is suitable for outdoor use, and for installations in damp places indoors, such as in dairies and breweries.

Order STANDARDS
to save time and material

NEVER ENOUGH production time—scarce material urgently needed! Both far too valuable to be spent in building unnecessary control rooms and special enclosures.

But delivered-ready-to-install control isn't all that the General Electric line of standard combination starters offers you.

These starters combine two devices—a fused motor-circuit switch and a magnetic starter—in one compact unit. This saves you one complete mounting job. They come to you completely wired and ready to install—saving all the time and material needed to wire up two individually mounted controls.

If you wish, our local sales engineers will help you select the proper starter for your job from this standard line of G-E combinations—for a-c motors up to 200 hp. *General Electric, Schenectady, N. Y.*

GENERAL ELECTRIC

More yardage broken fewer machine-hours lost

● Continuous, smooth operation of shovels and mucking machines depends to a large extent on the way your material is broken.

Hercomites* and Gelamites* lay down the rock and ore for easy, speedy handling —hold idle machine hours to a minimum.

More of these high-cartridge-count explosives are used today than ever before, because throughout the mining, quarrying, and construction industries their superiority has been definitely established. They are more economical and more effective. Six grades of Hercomite* and two of Gelamite* meet your requirements for nearly all types of blasting.

Thus, to get the maximum production from your present equipment . . . and hold powder costs to a minimum at the same time, investigate Hercomites* (2 to 7) and Gelamites* (1 and 2).

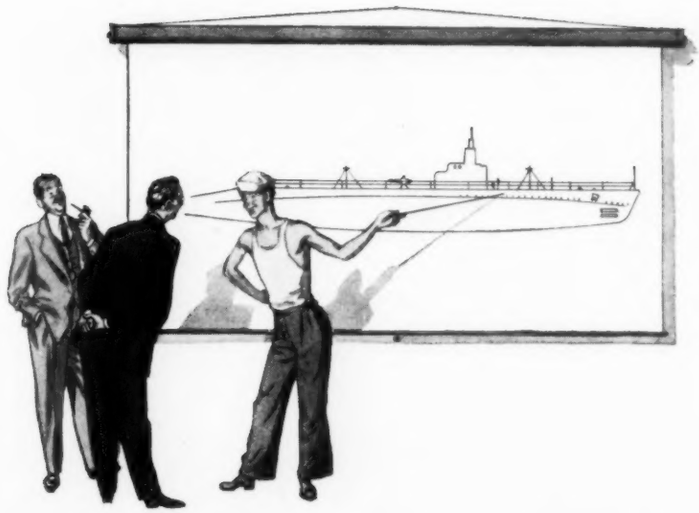
* REG. U. S. PAT. OFF.

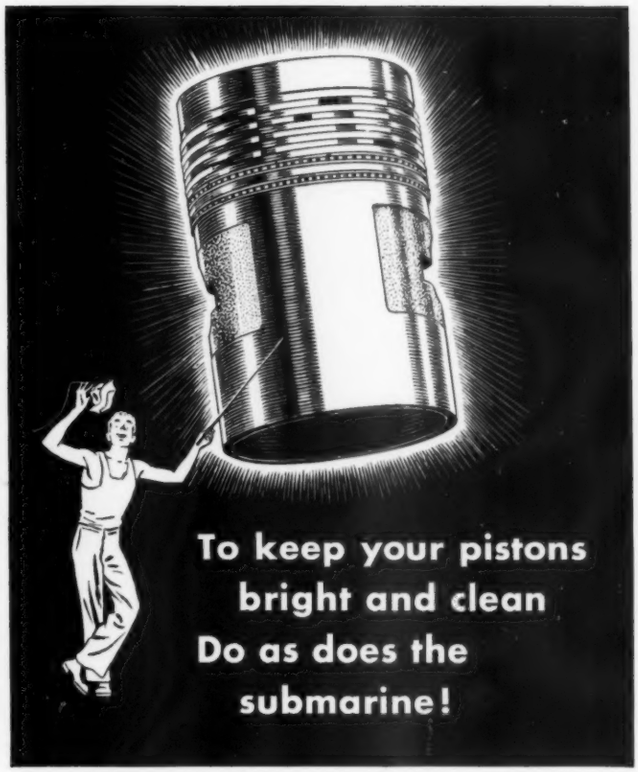
HERCULES POWDER COMPANY
INCORPORATED

960 King Street . . Wilmington, Delaware

A-9CA

This submarine of the U. S. fleet Must keep its Diesels running sweet . . .





. . . use RPM DELO, used by the United States Navy to lubricate the powerful Diesels in our submarines and other warships.

These drawings, from actual photographs in our files, reveal the difference between two pistons, each run 846 hours in a test. One was lubricated with the finest straight mineral oil available, yet its rings were stuck with gum and the skirt was varnished.

The other, lubricated by RPM DELO, was protected by the non-corrosive, anti-oxidant properties that make "RPM" the world's finest Diesel oil. Put RPM DELO to the test in your own Diesels. You, too, will see how it retards ring-sticking and varnishing.

RPM DELO

ORDER RPM DELO FOR YOUR DIESELS

RPM DELO is marketed under the following names:

RPM DELO • Caltex RPM DELO • Kyso RPM DELO
Signal RPM DELO • Imperial-RPM DELO • Sohio RPM DELO
CONCENTRATE

Ask your Diesel engine manufacturer or distributor for the RPM DELO supplier in your vicinity

STANDARD OIL COMPANY OF CALIFORNIA

When SPEED is Essential

—Instantaneous Dumping Counts

Koehring Dumptors have the war speed so vital for essential military projects. As in peace-time, Dumptors are now hauling dirt and rock at high speed for the armed forces, here and overseas. Instantaneous dumping saves seconds, increases trips per hour, assures full loads every trip. All types of material are dumped clean every time. Remember the Dumptor and its many cost-cutting features, when they are again available for peace-time projects.

KOEHRING COMPANY
MILWAUKEE • WISCONSIN

Depend on your Koehring distributor to help you keep your equipment operating. Care for your Koehring equipment NOW, so it will serve you tomorrow. Koehring distributors have genuine Koehring parts. Koehring parts warehouses are at your service.

HEAVY-DUTY CONSTRUCTION EQUIPMENT

Lightweight*

THE PERFORATIONS DO THE TRICK!

The perforations in Hendrix Buckets serve a three-fold purpose, the first is the reduction of bucket weight. Second, they eliminate vacuum and insure a quick, clean dump. Third, in wet digging, they let the water remain in the pit so that the operator gets a full load of pay material every trip. Perforations are round to eliminate the hazards of breaks and are so arranged that the strength of the bucket walls is not impaired.

*means bigger pay loads!

That's just what it means. Hendrix Lightweight Buckets are 20% to 40% lighter than other buckets, type for type, permitting the use of a larger bucket than that for which your machine was designed, yet maintaining the allowable loaded weight. This also permits the use of a larger bucket on operations requiring a long boom. In wet digging you step-up pay loads by leaving the water in the pit.

Don't get us wrong . . . we've sacrificed none of the bucket's strength or durability. Every Hendrix bucket is designed and built in accordance with sound engineering principles and into each one go the qualities which assure years of trouble-free service. We simply eliminate all the excess weight . . . the load goes *inside* the bucket

Hendrix Buckets also available without perforations.

★ ★ ★ ★

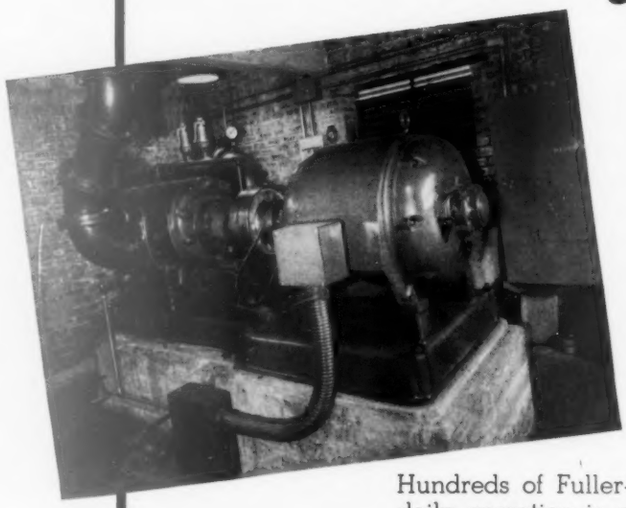
YOUR SCRAP WILL HELP WIN
GET IT INTO THE BATTLE!

HENDRIX
Lightweight **DRAGLINE BUCKETS**

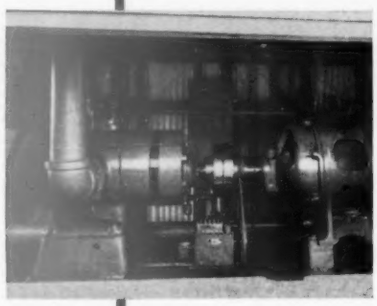
DESOTO FOUNDRY, INC. • MANSFIELD, LOUISIANA

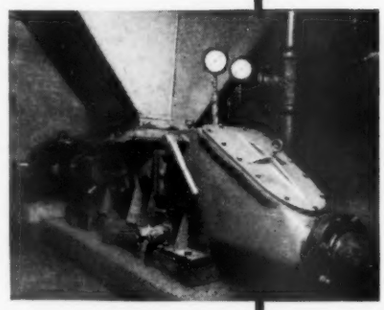
FULLER-KINYON PUMPS and FULLER ROTARY COMPRESSORS

Do the Job Best!



Hundreds of Fuller-Kinyon Systems are in daily operation in many and varied industries: chemical, cement, steel, ready-mixed concrete and asphalt plants. On this page are illustrated a few of these systems operated by ready-mixed concrete plants . . . Fuller-Kinyon Pumps for unloading and conveying bulk Portland cement from hopper-bottom cars and barges. These plants also take advantage of the adaptability of Fuller Rotary Compressors for such applications because, they're economical in operation and supply air when and where you need it, and at pressures to do the work most economically.





FULLER COMPANY

CATASAUQUA, PENNSYLVANIA

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FULLER-KINYON, FLUXO, AND AIRVEYOR CONVEYING SYSTEMS · · · · ROTARY FEEDERS AND DISCHARGE GATES
ROTARY AIR COMPRESSORS AND VACUUM PUMPS · · · · AIR-QUENCHING COOLERS · · · · BIN SIGNALS

CEMENT MIXER SINGIN'

Boss happy, too, because Bemis RIP-CORD Closure Saves so much time on the job . . .

The cement worker's melody may be a little off key, but it comes from the heart. For the cement he is using comes in cotton bags closed with Bemis Rip-Cord Closure.

The Rip-Cord Closure can be opened easily without removing gloves . . . without tools . . . without tediously picking at wire or cord ties . . . without damaging the bag. Just a quick jerk on the rip cord and the bag is ready to empty.

Rip-Cord closing is efficient on your production line . . . brings economies on new bags . . . conserves storage space . . . increases the life of multi-trip bags as much as 50%.

Why not look into the possibilities of Rip-Cord economy and sales appeal for your product!

ASK THE MAN WHO OPENS THE BAG

If you want proof of the sales appeal and efficiency of the Rip-Cord Closure, ask the man who opens the bag. He'll tell you how a quick jerk opens the closure without damaging the fabric of the bag. This saves time and trouble . . . increases bag salvage. Rip-Cord closing may be used on any type of cloth cement bag.

BEMIS BRO. BAG CO

Better Bags For 85 Years

OFFICES: Baltimore • Boston • Brooklyn • Buffalo • Charlotte • Chicago Denver • Detroit • East Pepperell • Houston • Indianapolis • Kansas City Los Angeles • Louisville • Memphis • Minneapolis • Mobile • New Orleans • New York City • Norfolk • Oklahoma City • Omaha • Peoria St. Louis • Salina • Salt Lake City • San Francisco • Seattle • Wichita

MAIL COUPON FOR COMPLETE DETAILS

Bemis Bro. Bag Co., 413 Poplar Street, St. Louis, Missouri

Please send complete details on efficient Bemis Rip-Cord Closures.

*Name*_____

*Company*_____

*Street*_____

*City*_____ *State*_____

92,000,000 tons of iron ore last year—

100,000,000 THIS YEAR

The world's largest open pit iron mine at Hibbing, Minn.

PMCO

WELDED DIPPERS

are on the job

for increased production in iron mines, giving as much as 30% added capacity to shovels. PMCO Welded Dippers are widely used on the Messabi range—their rugged strength stands up under continuous operation—the efficient weight factor allows maximum daily output from each shovel in digging iron for Victory.

This PMCO Welded Dipper has stood the test of 3½ years of continuous use in the hardest of iron ores--Taconite.

We operate the largest and most complete manganese steel foundry in the United States.

PETTIBONE MULLIKEN CORPORATION

Established 1880

4710 West Division Street, Chicago, Illinois

This Test Shows the Very Real Advantage of the CONCAVE SIDE!

What Happens When a V-Belt Bends

FIG. 1

FIG. 2

435

Grip the side-walls of *any* V-belt as it bends. You will *feel* its sides change shape. The top of the belt becomes narrower because it is under tension. The middle of the side-wall bulges out. You will see that a *straight-sided* V-belt must assume, when it bends, the shape shown in figure 1 (on the left)—a shape that *doesn't fit the sheave groove.*

Now try the same test with a Gates Vulco Rope. You will find that the *same shape change merely straightens* the precisely engineered Concave Side (See figure 2). There is no side-bulge. This insures uniform side-wall wear:—*longer life!* Moreover, the full side-wall of the belt uniformly grips the pulley. It therefore carries heavier loads without slipping—a saving in belts and also a saving in power.

Only belts built by Gates are built with the Concave Side, a Gates patent.

THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

CHICAGO, ILL. 549 West Washington
NEW YORK CITY 215-219 Fourth Avenue
ATLANTA, GA. 738 C. & S. National Bank Building
LOS ANGELES, CAL. 2240 East Washington Boulevard
DENVER, COLO. 999 South Broadway
DALLAS, TEXAS 2213 Griffin Street
PORTLAND, ORE. 333 N. W. 5th Avenue
SAN FRANCISCO, CAL. 1090 Bryant Street

ENGINEERING DATA

SPECIFICATIONS—HARDINGE BALL MILL

Size Mill	Weight of		Weight of Balls		R.P.M. Mill		Horsepower				CAPACITY IN TONS PER 24 HOURS				
							To Run		Of Motor						
	Mill	Lining	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	1½" to 10 Mesh	¾" to 48 Mesh	½" to 100 Mesh	¼" to 98% —200 Mesh	¼" to 98% —325 Mesh
2'x8"	1150		500	650	35.2	46	1.5	2	1.5	2	7	3.5	2.5	1.5	1
3'x8"	2700	1400	1000	1300	30.4	39.8	5	6	5	7.5	21	10	8	5	3
4½'x16"	7000	5200	3600	4600	25.2	33	15	18	15	20	65	33	23	15	9
5'x22"	10200	8000	6500	8300	23.2	30.4	32	37	30	40	140	70	49	31	19
6'x22"	15300	10000	10500	13500	21.2	27.7	52	60	50	60	232	105	80	52	31
7'x36"	20000	15400	20000	26000	19.4	25.4	92	115	100	125	465	225	155	102	61
8'x48"	29000	23000	34000	43500	18.2	23.8	163	200	175	200	820	394	274	179	108
9'x48"	38000	28000	45000	58000	17.3	22.4	260	310	250	300	1290	630	435	285	172
10'x48"	39800	30000	52500	67500	16.2	21.2	300	400	300	400	1690	810	560	367	221
12'x48"	66000	45000	83000	106000	14.7	19.2	500	600	500	600	2550	1210	840	850	330
12'x120"	80000	70000	152000	196000	14.7	19.2	1040	1160	1100	1200	4900	2340	1630	1060	640

(1) Capacities given are for grinding material wet of average grindability. For hard materials the capacities should be reduced, and for softer materials—increased.
(2) Dry grinding capacities are 80 to 90% of the above capacities. (3) Normal operating ball charges for mill with air classifiers are 5 to 10% below minimum listed.

REPRESENTATIVE PERFORMANCES OF RUGGLES-COLES DRYERS

TYPE AND SIZE	XA-10	XA-14	XA-14	XA-18	XB-8	XB-14	XF-12	XF-14	XH-8	XW-2
Material	Zinc Slimes	Coal	Stone	Ore	Clay	Clay	Asbestos Rock	Stone	Flotation Concentrates	Ammonium Sulphate
Moisture in material fed, %	43	11.8	8.9	14.2	27.3	19.8	7.93	5.2	12.5	1.75
Moisture in material discharged, %	22	1.1	0.7	4.7	0.7	1.3	0.66	0.3	3.2	0.11
Temperature of outside air, deg. F.	70	65	75	40	50	70	75	47	38	48
Temperature of fan exhaust, deg. F.	140	168	145	165	226	221	170	390	355	107
Temperature of material fed, deg. F.	60	63	70	48	58	64	70	50	41	72
Temperature of material discharged, deg. F.	210	245	280	220	237	248	160	360	238	142
Type of fuel or heating medium	Oil	Coal	Coal	Oil	Coal	Oil	Oil	Coal	Oil	Steam
Calorific value of fuel, b.t.u. per lb. or gal.	151,000	13,900	14,000	144,000	12 405	138,000	140,000	14,000	140,000	940
Fuel consumed per hour, lbs. or gals.	40.2	715	940	143	280	65.8	260	1,260	24.7	290
Horsepower required for dryer drum	11	48	53	73	12	54	50	56	10.5	6
Horsepower required for dryer fan or fans	8	9	9.5	16	4.5	16	11	11	3.5	3.5
Capacity, dried material per hour, lbs.	11,000	46,000	76,400	98,500	3,915	18,500	160,000	104,000	13,100	5,300
Water evaporated per hour	4,080	5,580	7,096	10,906	1,414	4,267	12,800	5,375	1,392	90
Water evaporated per lb. or gal. of fuel	102	7.8	7.55	76.2	5.05	64.8	49.3	4.27	56.3	0.31
Fuel per ton (2,000 lbs.) of dried material, pounds or gallons	7.30	31.1	24.6	2.91	142	7.1	3.26	24.3	3.77	109

HARDINGE ROD MILL DATA

Size of Mill	Weight in Pounds			R.P.M. Mill		Horsepower				Capacity	
						To Run		Motor			
	Mill	Lining	Rod Charge	Min.	Max.	Min.	Max.	Min.	Max.	Tons-24 Hr. Wet Grinding ¾" to 20 Mesh	Tons-Hr. Dry Grinding ¾" to 10 Mesh
2'x4'	5000	3000	1700	32	43	5	6	5	7½	27	1
3'x6'	10000	10000	6000	25	34	15	18	15	20	80	3
4'x8'	16000	20000	14000	21	29	33	40	35	40	180	6
5'x10'	32000	31000	27000	18	25	60	80	75	100	350	12
6'x10'	42000	41000	40000	16	19	90	115	100	125	510	18
7'x12'	58000	57000	68000	14	17	150	185	150	200	830	29
8'x12'	71000	70000	90000	12	15	190	240	200	250	1070	38
9'x12'	87000	85000	115000	11	13.5	240	300	250	300	1340	47
10'x16'	115000	113000	195000	10	12.5	390	490	400	500	2200	77

HARDINGE COUNTER-CURRENT CLASSIFIER DATA—WET CLASSIFICATION

Size Class.	Material	Object	Fineness Mesh			CAPACITY				DILUTION			Sp.g. of Ore	R.P.M. Classifier	HP Req.
			Overflow	Oversize	Feed	Overflow T 24 hr. (dry)	Overflow T hr. (dry)	Oversize T hr. (dry)	Feed T hr. (dry)	Overflow % solids	Oversize % solids	Feed % solids			
18"x4'	Limestone	Closed Circuit with 2'x8' H. Mill	tr.+200 94.7%—325	4.8%—325	.5%+48 28.4%—325	1.2	.05	.2	.25	11	72	55	2.6	2	.1
3'x8'	Quartz Gold Ore	Closed Circuit with 5'x36" H. Mill	tr.+65 64.4%—200	8.5%—200	19.2%—200	50	2.1				84.2	72	2.6	4	.7
5'x12'	Quartz Gold Ore	Closed Circuit with 7'x36" H. Mill	1.6%+100 80%—200	78.4% +100M 7.3%—200	10%+10 18.4%—200	192	8			30	81	78	2.7	2	1.5
6'x14'	Quartz and Porphyry Ore	Pr. Classification Closed Circuit with 8'x30" H. Mill	3.5%+28	52.5%—28	2.5%+6	520	22	52	74	45	82	74	2.7	2.3	4
8'x20'	Lead Zinc Ore in Limestone	6'x12' Rod Mill to class. in c. c. 6'x8' with B. Mill	6.6%+48 39.8%—200	29.4%+48 8.2%—200	—10 Mesh	1040	43			51	85		3.9	1.5	8

HARDINGE THICKENER DATA

Number and Size Thickener	Material	Object	Mesh Fineness Feed	Feed rate Solution T-24 hrs.	Feed rate Dry Solids T-24 hrs.	% Solids in Feed	% Solids Underflow	Settl'g Rt. Sq. Ft. T-24 hrs.
1—20'x8'	Zinc, Copper, Lead Ore	To thicken Classifier overflow for flotation feed	99.5%—200	400	100	20	40	3.1
1—24'x8' 4—20'x8'	Quartz Ore	Primary thickening and C. C. D. washing Cyanide Treatment	5%+65	180	60	25	58	5
1—40'x12'	Float. Mill concentrates	Dewatering		1050	350	25	56	4
1—60'x10'	Copper ore Pyrite and Chalcopyrite concentr.	Dewatering and Thickening	100	1680	560	25	75	5

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COMPANY, INCORPORATED - YORK, PENNSYLVANIA
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Helping a "Conqueror" prepare ... *for oblivion*

CITIZEN and warrior, you know that the defenses your unwilling hands are building will not save the self-styled "conquerors" of Greece. Who has ever conquered Greece and held it enslaved? History answers in tones of thunder: "None!"

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The vast armaments that are on their way have their beginnings in free America — deep in pit, mine and quarry where strong men set even stronger forces at work — using Ensign-Bickford Safety Fuse and Primacord-Bickford Detonating Fuse to make pounds of explosive blast out tons of coal and useful ores!

Yes . . . *Victory begins underground!*

F-P

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SIMSBURY, CONNECTICUT

Primacord-Bickford
Detonating Fuse

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Where fine crushing is done in quantity, no crusher can approach the performance of the Short Head Cone. Investigate the merits of this unusual crusher.

Many plants engaged in the production of crushed stone, gravel, slag and various industrial minerals are handicapped due to the inability to produce the more finely crushed sizes in sufficient quantity to meet today's emergency demands. Where such conditions prevail, the answer will be found in the installation of a Symons Cone, the Crusher now serving most modern crushing plants engaged in fine crushing operations.

If you require greater output of more finely crushed materials, follow the example of the leaders in the industry who are users of Symons Cone Crushers.

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FISKE BROTHERS REFINING COMPANY
NEWARK, N. J. **SINCE 1870** TOLEDO, O.
WRITE FOR THE NAME OF THE DEALER NEAR YOU

PIT AND QUARRY

Vol. 35 JUNE, 1943 No. 12

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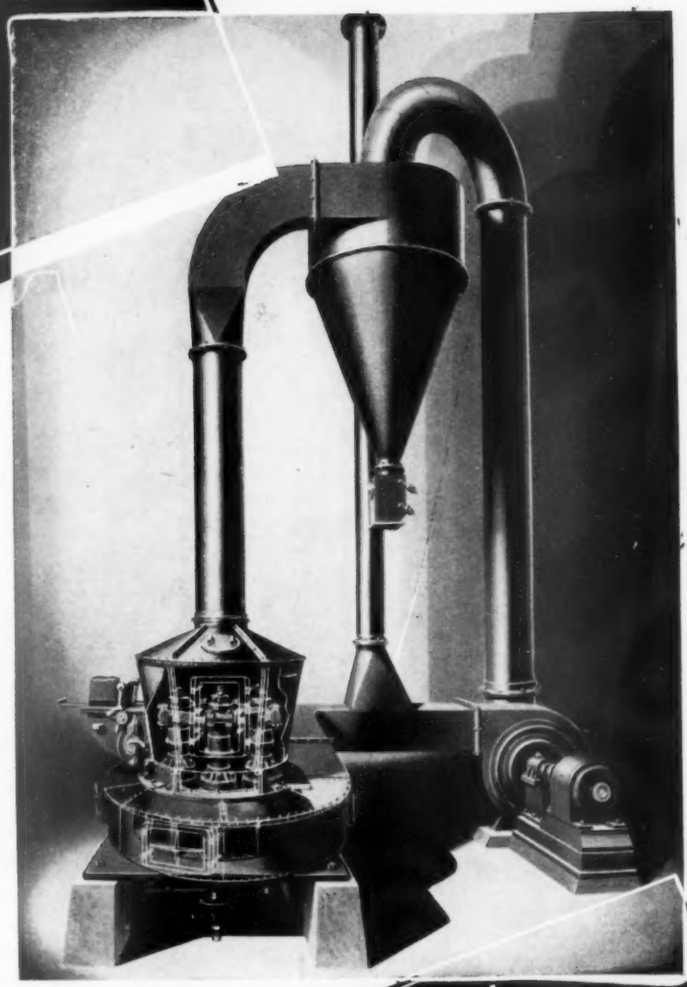
MEMBER AUDIT BUREAU OF CIRCULATIONS

PIT AND QUARRY IS INDEXED IN THE ENGINEERING INDEX

RAYMOND Low Side ROLLER MILL

For Meeting Today's Big Production of Powdered Materials



Here is a large capacity machine with a wide range of use . . . and equipped with the latest Raymond features to give increased operating efficiency.

New type spider vanes, revolving in the top of the grinding chamber, maintain product uniformity without sacrifice of capacity.

Pneumatic feed control, sensitive to variations of air pressure in the system, keeps a maximum load on the mill at all times, insuring high tonnage per horsepower.

Self-lubricating oil journals, plus high grade bearings and well balanced, sturdy construction, contribute to long service life and low operating costs.

* * *

Low Side Roller Mills are economically adapted for pulverizing phosphate rock, gypsum, limestone, barytes, bauxite, bentonite, clay, langbeinite, and other non-metallic minerals. They are built in several sizes with capacities up to forty tons per hour for the Super Roller Mills.

These mills may be used for drying and grinding in one operation by introducing heated air into the mill system for evaporating surface moisture from the material, as in drying and pulverizing coal.

An Economical Producer for materials pulverized to medium fineness from 60% to 95% minus 100-mesh

For Low Side Roller Mills, write for Catalog No. 34. For High Side Roller Mills (extreme fine grinding), ask for Catalog No. 51.

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Versatile Buell Dust Recovery Systems help produce it

Carbon dioxide, the gas that puts the pop in soda, inflates rubber life rafts, and makes dry ice, is also the gas that snuffs out flaming gasoline and oil. At landing fields and on carrier flight decks, asbestos-clad rescue squads stand by with bright red cylinders of CO_2 to fight crash-landing fires. Planes aloft carry CO_2 to snuff engine fires and prevent gas tank fires caused by tracer bullets.

Versatile Buell Dust Recovery Systems help produce this flame-killer—in many plants as a profitable by-product from flue gases. Buell's function is to clean the gases by removing contaminating flue dust prior to the recovery of the carbon dioxide—a job at which Buell Dust Recovery Systems have proved highly efficient and economical.

The patented van Tongeren cyclone, an exclusive feature, gives Buell Dust Recovery Systems their high efficiency. Long life, low operating and maintenance cost, and unlimited capacity are other reasons for Buell's wide acceptance throughout industry.

Factual 28-page book.
Write for Bulletin G-842.

Memo to

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Buell Dust Recovery Systems offer outstanding advantages in efficient economical operations in conjunction with

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Stone Dryers *Finishing*
Bagging

and other operations.

Buell installations are in wide use throughout the rock products industry. On the list of Buell users are such well-known names as Dewey, Kosmos, Lehigh, Lone Star, Medusa, Standard Lime & Stone...and many others.

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BUY WAR BONDS AND MAKE THE AXIS BITE THE DUST

Cement Plant Using Equipment to Make Agricultural Stone

Early in April of this year the National Cement Company began to produce agricultural limestone at its Ragland, Alabama plant under A. A. A. contracts for the surrounding area. No additional equipment was required and all processing and handling is done with existing equipment.

When making agricultural stone, the limestone is processed without the usual cement ingredients through the driers, mills, etc., in the raw-grinding department. A Fuller-Kinyon pump feeds the finished product either to bins feeding one of the Bates bag packers ordinarily used for cement, or to a bulk-loading system. This consists of a standpipe with a high pipe for loading hopper cars and a low pipe for loading box cars. Cars can also be loaded from the packer-feed bins.

At present, with only two of the plant's five kilns in operation, the output averages 50 tons per hour.

Cement Official Dies During Annual Dinner

Andrew T. McCormack, 56, general sales manager of the Medusa Portland Cement Company collapsed and died of a heart attack recently while speaking at the annual banquet given by his company in a Cleveland hotel. He had been with the concern for 26 years.

Report Cement Plant to Rise Near San Diego

According to George H. Malette, head of the San Diego County mines bureau, eastern interests are planning to establish a cement plant near the lower border of California as equipment can be obtained.

A survey of raw materials suitable for cement manufacture has just been undertaken in the San Diego area.

New Quarry Firm Will Have Arkansas Plant

Stone Products, Inc., of Batesville, Arkansas, filed an application with the secretary of state at Little Rock asking for a charter to operate a quarry in Independence County in that state. The application showed that the company will have 30,000 shares of common stock at par value of $1. The initial capital of the company will be $30,000.

The incorporators are H. F. Wolford of Batesville and H. O. Davis and H. S. Davis of Little Rock.

Operations Started at Newest Graphite Plant

A graphite mine and processing plant, built by the Defense Plant Corporation in Chester County, Pennsylvania, at a cost of $425,000 has gone into operation.

The operating company is known as the Benjamin Franklin Graphite Company. Its secretary-treasurer is Robert S. Herbert, head of the Dallenbach Sand Company of New Brunswick, New Jersey.

Coming Events

June 3-4, 1943—Chicago. Eighth annual meeting, National Industrial Sand Association, Palmer House.

June 6-9, 1943—Chicago. Mid-summer meeting, board of directors and board of governors, Associated Equipment Distributors, Edgewater Beach Hotel.

June 28-July 1—Pittsburgh. Annual meeting, American Society for Testing Materials, William Penn Hotel.

Court Orders Quarry to Limit Blasts to 100-Pound Charges

Circuit Judge John A. Witthaus of Clayton, Missouri, issued an order May 3 restricting the Big Bend Quarry Company of St. Louis from using "dynamite charges of more than 100 pounds and at less than 3-minute intervals."

The order came as the result of an injunction instituted against the quarry company in December, 1941, by Prosecuting Attorney Stanley A. Wallach. Charges at that time were that the quarry, located at Wall street and Laclede Station Road, had disturbed the peace, damaged adjoining property and was a public nuisance."

Peerless Cement Kilns Now Turning Out Lime

The Marblehead Lime Company of Chicago and the Peerless Portland Cement Company of Detroit are jointly operating the Peerless cement plant at Port Huron, Michigan, for the production of lime.

The Marblehead company needed additional capacity to meet the present unprecedented demand for lime and chose this method of obtaining it in preference to building a new plant or expanding its present facilities, either of which alternatives would have meant considerable delay.

New Magnesium Company Organized in Indiana

Midwestern Magnesium, Inc., of Garrett, Indiana, has filed articles of incorporation with the secretary of state at Indianapolis, Indiana. It will have 10,000 shares of $10 par value.

The incorporators are Maurice Shulze, Richard Cole and Joseph E. Bell.

Twelve Kansas City Quarries Permitted to Raise Wage Rates

Wage increases of from 5 to 5½ cents an hour have been granted approximately 600 employees of 12 crushed stone companies in the Kansas City area by the National War Labor Board.

Employees receiving less than 72½ cents an hour will be given 5½-cent increases, while those receiving more than 72½ cents will get 5-cent increases. The ruling sets up a basic wage of 73 cents an hour as compared with a rate of 67½ cents prior to the adjustment.

The twelve companies affected by the adjustment are: American Rock Crusher Company; Kansas City Quarries Company; Midwest Precote Company; Frank Flynn Rock & Construction Company; Stewart Sand & Materials Company; Bethany Rock Company; Deitz Hill Development Company; Centropolis Crusher Company; Beyer Crushed Rock Company; Reno Construction Company; West Side Rock Company; and the Trager Company.

Cement-Plant Veteran to Farm for Duration

Members of the Twenty-Year Service Club of the Limedale, Indiana, plant of the Lone Star Cement Corporation held a dinner meeting recently honoring one of their newest members, Conrad Shinn, who is leaving his job.

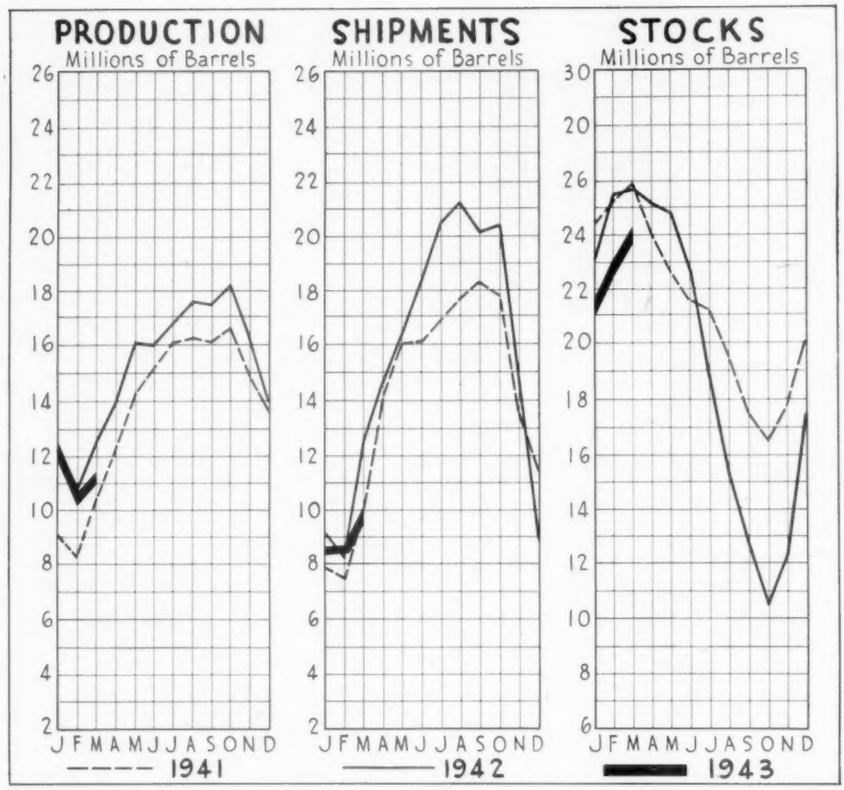
Mr. Shinn, a locomotive operator, has been working at the quarry since September 4, 1922, and owns a farm in Putnam County which had been operated by his two sons. Both young men have been inducted into the armed forces and Mr. Shinn felt it his duty to aid the "Food for Freedom" campaign by operating the farm himself . . . for the duration anyway.

Paid Circulation of Pit & Quarry Among Nonmetallic - Mineral Producers in Recent Years:

1942	(November)	6,650
	(May)	6,513
1941	(November	6,179
	(May)	5,945
1940	(November)	5,397
	(May)	5,037
1939	(November)	4,641
	(May)	4,617
1938	(November)	4,496
	(May)	4,366
1937	(November)	3,971
	(May)	3,772
1936	(November)	3,654

CONTINUOUSLY FOR 26 YEARS THE LARGEST PRODUCER CIRCULATION IN THE FIELD

82% increase in 6 Years



March was the second successive month in which production of finished Portland cement was lower than in the same month of 1942. The March decline was more than double the corresponding 5 per cent. decrease recorded in February and production in the first three months of 1943 was 5 per cent. below that of the same period of 1942. Cement shipments in March 1943, reported to the Bureau of Mines, totaled 10,108,000 barrels and were one-fifth lower than in March 1942. Also indicating the decline in demand for cement, shipments in March 1943 were only about 40 per cent, greater than average March shipments during the 1935-39 period whereas those in both January and February 1943 were slightly more than double average shipments during the same months of 1935-39. As production exceeded shipments during March 1943, stocks of finished cement at mills increased 1,284,000 barrels over stocks at the end of February to a total of 24,269,000 barrels on March 31.

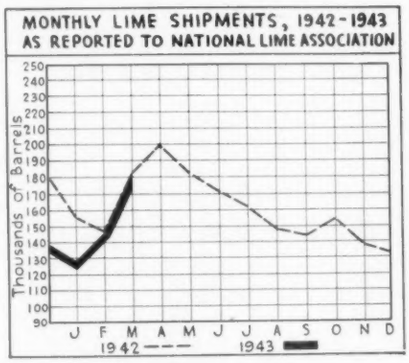
Seeks Dredging Permit to Operate in River

The application of the Pioneer Sand Company of St. Joseph, Missouri, for approval of plans and issuance of a permit, under approval of the Secretary of War, to dredge sand and gravel in the Missouri River near St. Joseph, is reported under consideration.

The dredging is to be done about 460 miles above the mouth of the river.

National Gypsum Shows Small Earnings Gain

The National Gypsum Company reported net earnings of $179,283, equal to 8 cents a common share, for the quarter ending March 31, after provision for taxes of $261,000. This compared with $173,362, also 8 cents a share, in the first quarter of 1942.


MONTHLY LIME SHIPMENTS, 1942-1943
AS REPORTED TO NATIONAL LIME ASSOCIATION
Thousands of Barrels
J F M A M J J A S O N D
1942
1943

According to data collected by the National Lime Association, 65 companies in March, 1943, shipped 182,703 tons of lime (122,939 quicklime; 59,764 hydrate). Reporting companies represent 43.3 per cent. of the association's total capacity of record. Based on PIT AND QUARRY'S estimates for the remainder of the industry, the total shipments for the month by all plants were approximately 450,000 tons. Shipments of lime by users for March, 1943, were:

Use	Quicklime (tons)	Hydrate (tons)
Agricultural	3,016	18,687
Building	10,382	16,391
Chemical	109,541	24,686
Total	122,939	59,764

Ohio Producers Meet to Discuss Safety; Award Certificates

D. J. Carpenter, National Lime & Stone Company, Findlay, Ohio, was elected president of the Cement, Lime, Quarry, Sand & Gravel Section of the All-Ohio Safety Congress held at the Neil House, Columbus, April 21. Other officers are Claude L. Clark, executive secretary of the Ohio Sand & Gravel Association, vice-chairman; and F. W. Weber, Standard Lime & Stone Company, Woodville, secretary.

Speakers at the section meeting included W. E. Hole, secretary, American Aggregates Corporation; H. O. Meloy, superintendent, Painesville plant, Standard Portland Cement Company; and D. J. Carpenter, assistant sales manager, National Lime & Stone Company.

At the close of the meeting the Standard Lime & Stone Company, Woodville, was awarded the Lime Burner Safety plaque. The Basic Refractories Company, Maple Grove, was awarded the Quarry Certificate.

The Killbuck Sand & Gravel Company, Killbuck, and the Schmidt Brothers Sand & Supply Company, Cleveland, were also awarded safety certificates.

"Cordy" Hall Inducted Into J-M Service Club

Corydon H. ("Cordy") Hall, district manager of Johns-Manville's power-products department in Chicago, was inducted into the J-M Quarter Century Club at a dinner held recently in his honor.

Mr. Hall helped complete the transaction by which the old Banner Rock Products Company, of Alexandria, Indiana, came under ownership of the Johns-Manville Corporation in 1929. His father, the late Charles C. Hall, founded the Banner Rock concern and pioneered in early development of rock wool as an insulating material.

Sales of Lime in 1942 Exceed 6 Million Tons

Although total sales of lime in 1942 (6,076,000 short tons), as reported to the Bureau of Mines, were only 3,000 tons below the record volume of 1941, the first year of war had marked diverse effects on sales of the several types of lime. Total quicklime sold in 1942 gained 7 per cent. over 1941, whereas sales of hydrated lime declined by one-fifth. The stoppage early in April, 1942 of all construction not essential to the war program resulted in a falling-off of one-third in sales of building lime from 1941.

Compensating for this decline, sales of chemical lime and of dead-burned dolomite increased respectively 6 and 15 per cent. over the 1941 volumes. The increased demand for chemical lime was due largely to greater consumption as flux in steel making, in the purification of bauxite for aluminum smelting and in the manufacture of calcium carbide. Consumption of agricultural lime declined only slightly from that in 1941.

Mica-Mining Concern to Operate in Virginia

The Lincoln Mining Company, a North Carolina corporaton with principal office in Roanoke, Virginia, has filed a certificate of authority, with Holman Willis as agent in charge of business, with the secretary of state at Richmond, Virginia.

The maximum capital of the company will be $10,000 and it will do a mica-mining business.

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PIT AND QUARRY

● When you have finished with your copy of Pit and Quarry — and if you do not maintain a permanent file of back numbers—please pass it to someone else in your organization. By doing so you will not only be helping him by making the information it contains available to him, too, but you will also be helping your government which, because of the shortage of manpower, has been forced to place limitations on the use of paper by magazine publishers. We shall, of course, continue to send Pit and Quarry regularly to you and to all other subscribers. But we suggest this simple method of making Pit and Quarry available to a larger number of men at a time when the information it provides is most urgently needed and without increasing our consumption of paper. Your government, your friends and we will appreciate your willingness to help by sharing.

Committee Named to Recommend Minimum Industry Wage Rate

An industry committee of 24 persons was appointed May 6 by L. Metcalfe Walling, Administrator of the Wage and Hour and Public Contracts Divisions of the United States Department of Labor, to recommend a minimum wage rate in the stone, clay, glass and allied industries, employing about 500,000 persons.

The committee will meet May 27th at the Labor Department offices, 165 West 46th Street, New York. Its function is to take evidence, to hear testimony, and then to recommend the highest minimum wage rate (above 30 cents but not to exceed 40 cents an hour) for those employed in the industry, with due regard for economic and competitive conditions in that industry.

The chairman of the Committee is Robert P. Brecht, professor of industry, Wharton School of Finance and Commerce, University of Pennsylvania, Philadelphia. The committee includes:

For the Public:

Robert P. Brecht, chairman, Philadelphia.
Ruth Allen, Austin, Texas.
Frederick Dewhurst, New York City.
Frank T. deVyver, Durham, North Carolina.
F. B. Gear, Memphis, Tennessee.
William S. Hopkins, Palo Alto, California.
Colston E. Warne, Amherst, Massachusetts.
William E. Wickenden, Cleveland.

For the Employees:

W. H. Hodges, Atlanta, Georgia.
George Dougherty, Pittsburgh.
Vincent P. Ahearn, Washington, D. C.
J. Frazier Glenn, Asheville, North Carolina.
W. M. Palmer, Ocala, Florida.
E. Ray Rankin, Statesville, North Carolina.
J. A. Rigg, Fort Spring, West Virginia.
Fred Smith, Spruce Pine, North Carolina.

For the Employers:

Leland Beard, Columbus, Ohio.
H. C. Ledyard, Fort Wayne, Indiana.
Ralph Reiser, Festus, Missouri.
Harry H. Cook, Toledo, Ohio.
John Garvey, Washington, D. C.
Frank Kasten, Chicago.
William Schoenberg, Chicago.
Boris Shishkin, Washington, D. C.

Road Builders Study Post-War Projects at Chicago Meeting

Urging the need for planning ahead now if highway building is to play its part in the post-war economic adjustment, speakers at the annual convention of the American Road Builders Association held in Chicago May 4-7, launched the post-war program outlined in a study announced by the association a few weeks ago. Announced as a post-war conference, the 650 delegates considered few other subjects, and the theme of the four-day session was scheduling at least a five-year program of highway construction by states, counties and municipalities to be ready immediately after the war.

An indication of the trend of thought with respect to post-war planning in the highway field is found in two bills now pending in Congress, declared the association's newly-elected president, Carl W. Brown, chief engineer, Missouri State Highway Department. One of these bills provides that unobligated funds be not reapportioned and the period for their use be extended. The other bill authorizes the appropriation of $3,000,000,000 for highway construction—the amount to become available at the rate of $1,000,000,000 per year immediately following the close of the war. Federal participation with states and cities has, in the past, given too little consideration to cities and municipalies, said President Brown, and any legislation which is to do a complete and far-reaching job, must take into account the traffic problems that prevail in the municipalities and other congested areas of our nation.

The establishment of a Rural Roads Association as a part of the Federal Works Agency for the primary purpose of administering federal aid direct to counties was strongly advocated by the county highway officials division of the A. R. B. A. R. B. Traver, county engineer, Onondaga Co., New York, newly-elected president of the county highway division, warned that unless counties had a definite road-building program prepared at the proper time, there would be little use in asking for federal aid.

R. W. Gamble, superintendent of street construction, Milwaukee, was re-elected president of the Municipal Division.

The affiliation of the Associated Equipment Distributors as an active division of the A.R.B.A. was announced at the meeting.

The Highway Industries Association, affiliated with the manufacturers division, elected E. R. Galvin of the LeTourneau Company, president; Robert T. Harris, vice-president of the Blaw-Knox Division, vice-president; and Henry Schramm, president of Schramm, Inc., secretary-treasurer.

Construction Contracts Continue to Decline

Construction contracts awarded in the 37 eastern states during the month of April amounted to $303,371,000, according to F. W. Dodge Corporation. This figure represented declines of 11 per cent from the preceding month and of 39 per cent from April of last year.

Heavy engineering contracts were ahead of the contract total for April, 1942. Residential and industrial building contracts declined.

Contracting Firm Buys Ward Gravel Company

Announcement has been made of the sale of the Ward Sand & Gravel Company, of Oxford, Michigan, to the Fisher Contracting Company of Detroit.

The concern will be known as the Ward Sand & Gravel Division of Fisher Contracting Company.

Holm Succeeds Franks as National Manager

Following the retirement of Fred B. Franks, vice-president and general manager of the National Portland Cement Company, the superintendent of the plant, J. C. Holm, has been promoted to plant manager.

Correction

In the article describing the operations of the Phosphate Mining Company at Bartow, Florida which was published in the May issue of PIT AND QUARRY the concentrating tables used were incorrectly described as diagonal-deck tables. They actually are Mine & Smelter Supply Company "Wilfley" tables with square-end decks.

The William J. Breen Gravel Company of Grand Rapids, Michigan has changed its name to the Consumers Gravel Company. C. D. Wasmuth is secretary-manager.

Manitowoc Honors George Schwaab for 25 Years of Service

George P. Schwaab, sales manager for the Manitowoc Portland Cement Company, was honored at the recent annual mill meeting and dinner of the company at Manitowoc, Wisconsin, and was presented with a gold watch by J. B. John, president and general manager of the Medusa Portland Cement Company, parent organization, in honor of 25 years of service with the company.

P. G. Dawson, vice-president and secretary of the Medusa company, presided and in addition to a talk by President John, W. J. Worthy, general superintendent, and W. M. Powell, safety director, all from Cleveland, spoke.

North Carolina Might Abandon State Quarry

Advisability of continuing operation of the North Carolina Highway Commission's limestone quarry in Yadkin County is being discussed with the commission by Governor J. M. Broughton.

The cost of operating the quarry has been far in excess of the funds derived from the sale of the product, according to Charles Ross, general counsel of the commission.

At the governor's request, a committee has been named to study the matter with a view to effect such economies as might be necessary for continued operation. Appointed to the committee were Max Watson of Spindale, Percy B. Ferrebee of Andrews and George Kane of Roxboro.

Universal Atlas to Improve River Wharf

According to R. E. Hoffman, superintendent of the Hannibal, Missouri, plant of the Universal Atlas Cement Company plans have been submitted for a federal permit for a fill to embrace the present frame wharf at the plant. The wharf is located at Ilasco, Missouri, on the Mississippi River near Hannibal.

U. S. Gypsum's Earnings Show Small Decline

The United States Gypsum Company reports net profit for the March quarter of $1,084,342, equal to 76 cents a share on the capital stock. This compares with profit in the first quarter of 1942 of $1,141,894, or 84 cents a share.

WASHINGTON NEWS LETTER

another P AND Q exclusive

CONTROL over the production and distribution of critical components is moving slowly but surely forward. This control was initiated by the WPB General Scheduling Order, which was discussed on this page two months ago, and has now been advanced for a selected group of items. The new mechanism of control, which went into effect on June 1, will be called the Component Scheduling Plan. At first glance it is as complicated and as ambitious a piece of machinery as has ever emanated from the nation's capital. In evaluating the procedure, however, due consideration must be given to the magnitude and complexity inherent in the production scheduling problem itself.

The purpose of the plan is threefold: to provide a means of comparing future requirements for each component, under various war-production programs or projects, with manufacturing capacity for that component and for the other components and sub-components required under the program; to redistribute existing orders, where necessary to meet requirements; and to assure that new orders will be placed only in those plants which can meet the required delivery schedules. One of the basic attributes of the plan is that every purchase order for a controlled item placed with a manufacturer, or placed by him with a sub-contractor, or placed by the latter, in turn, with a sub-sub-contractor, will be clearly identified with the particular munitions or other program concerned.

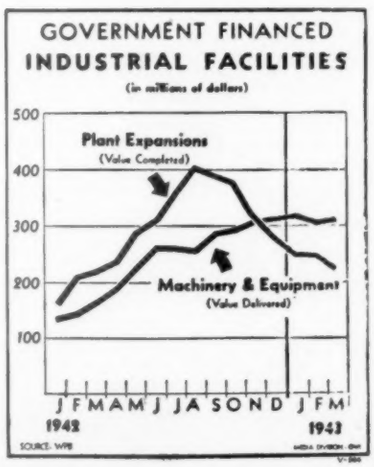
The following production programs or construction projects are already encompassed in the plan: all types and sizes of ships; tanks, combat vehicles, and motor-transport vehicles, as planned by the War Department; generating plants, both public and private, as planned by the Office of War Utilities; and plants designed for the production of rubber, high-octane gasoline, aluminum, magnesium and steel.

The components covered under the plan are classed in two groups. The first consists of the "control components", such as turbines, turbogenerators, internal-combustion engines, boilers, compressors, steam condensers, heat exchangers, fans and blowers, pumps, stokers, pulverizers, etc. These items are considered control components when they are purchased directly from the manufacturer by the claimant agency or prime contractor for use in the end-product. The second group includes the "sub-components", which are so considered regardless of who purchases them; these include such items as shafts, fuel injectors, carburetors, magnetos, reduction gears, electric motors and motor controls, and generators. Also included under the sub-component group are any items on the "control" list which are purchased by a party other than the prime contractor or claimant agency; thus, when a sub-contractor places an order for a component on the control list, it is considered a sub-component.

The plan embraces a system of chained component delivery schedules, all keyed to the basic program requirements. A summary of the various steps involved may help to clarify the procedure:

1. After a program has been determined, the claimant agency informs its prime contractors, and each of these prepares a set of future monthly requirements of control components to meet this program. The requirements are shown separately for each control component and each manufacturer with whom orders have been or are to be placed.

2. The War Production Board compares this set of requirements with the manufacturer's existing delivery schedules as frozen under the General Scheduling Order. When it appears that the required deliveries can be met without interference to these existing schedules, the WPB will make no adjustment, but where a manufacturer's capacity is inadequate to the task, even after reshuffling his production schedules, and it is found impossible or impracticable to adjust the requirement, the WPB will instruct that the orders involved be shifted to one or more specified other manufacturers who are "more advantageously situated."



3. Each manufacturer of a control component will furnish his suppliers with a set of his sub-component requirements and obtain from them scheduled delivery dates against these requirements. With this information as a basis, the manufacturer passes on his delivery schedule to the prime contractor, who is thereby informed of the deliveries which he can expect against his requirements. A supplier who purchases sub-components from other suppliers would obtain promised delivery dates against requirements from them before furnishing his schedule to the control component manufacturer.

4. If, at any link in the contracting chain, a requirement can not be met, the purchaser must immediately report the situation to the WPB, which will take whatever remedial action is found necessary.

The transmittal of information between the various parties, concerning program, requirements, and delivery schedules for all components, is accomplished by means of a single, somewhat lengthy form, which travels from hand to hand in the chain. The copy which each person in the chain receives serves as the informational basis for preparing the form to be presented to the next person in the chain. Thus, the prime contractor furnishes to the control component manufacturer a copy of the form which not only identifies the end-product program, but indicates the delivery requirement under that program. Before filling in his delivery schedule, the manufacturer prepares a copy of the form for submission to his sub-component supplier, who enters his delivery schedule on this form and returns it to the manufacturer. This enables the latter to estimate his delivery schedule, which he enters on the form received from the prime contractor, returning it to the latter. If the sub-component supplier purchases other sub-components from other suppliers, the chain is merely extended to include these.

The success of the system obviously depends to a tremendous degree upon the coöperation of the thousands of manufacturers and suppliers involved.

the VICTORY *Program*

. . . . . AND YOUR BUSINESS

AGRICULTURAL LIMESTONE PRIORITY.—In the absence of specific project ratings for agricultural limestone, the producers of such material have felt they were in a somewhat difficult position in connection with showing on the PD-400-C forms the priority pattern of the projects being served. To remedy this situation it was hoped that the Mining Equipment Division would assign to agricultural-limestone production a rating such as was done in regard to railroad ballast. While the division is not prepared to go that far, the National Crushed Stone Association has been authoritatively advised, according to Administrative Director J. R. Boyd, that it is its current policy to encourage the production of agricultural limestone by established producers, because such producers already have in large measure the equipment with which to operate and, in substantial degree, agricultural limestone is produced in the same plant as is crushed stone going to essential war projects. Accordingly, the production of agricultural limestone will be given favorable consideration in the assignment of quotas for the third quarter and a supplementary statement should be submitted immediately to the Mining Equipment Division, giving for agricultural limestone the information required in Part I of the PD-400-C form (see page 51 this issue). This policy should definitely improve the priority position of producers substantially engaged in the production of agricultural limestone.

CMP-5 AMENDED.— CMP Regulation No. 5, dealing with Maintenance, Repair and Operating Supplies, has been amended, the War Production Board announced May 14.

The preference rating AA-2X heretofore assigned to persons engaged in activities listed in Schedule II of the Regulation, becomes AA-2. The AA-2 preference rating has been re-established by an amendment to Priorities Regulation No. 1, issued the same day. The A-10 preference rating, available to persons engaged in businesses not listed on either Schedules I or II, becomes AA-5.

Schedules I and II of the regulation have been completely revised. Some activities and businesses formerly listed in Schedule II have been transferred to Schedule I and some formerly in Schedule I now appear in Schedule II. These changes will alter the preference ratings which may be used by the industries involved.

Provisions of the regulation relating to obtaining minor capital additions have been clarified. The amendment permits minor capital additions to be purchased under the MRO procedure where the cost of any one complete capital addition does not exceed $500, excluding the purchaser's cost of labor. "One complete capital addition" means a group of items customarily purchased together or all items which would be normally purchased as part of a single project or plan. Capital additions may not be subdivided for the purpose of bringing them within the $500 limit. Where such a capital addition involves construction, authorization to construct must be obtained to the extent required by Conservation Order L-41, or by any other applicable order or regulation of the War Production Board.

CMP Regulation No. 5 is clarified to indicate that aluminum may not be obtained under the MRO procedures except where the use of other materials is impracticable.

Persons engaged in the business of producing products covered by Schedules I and II of the regulation as revised, who need aluminum in any of the forms or shapes constituting controlled material in greater amounts than 100 pounds during any one calendar quarter, may apply for larger allotments by letter addressed to the Aluminum and Magnesium Division, War Production Board, Washington, D. C., Ref: MRO. This letter of application should contain substantially the information required by sub-paragraph (d)(1)(6) of Supplementary Order M-l-i, as amended March 10, 1943. If the application is granted, the applicant will receive an allotment number or symbol. He may then place an authorized controlled-material order by endorsing his order form with the allotment number or symbol and the certification prescribed in Paragraph (s)(3) of CMP Regulation No. 1 or in CMP Regulation No. 7.

The amendment makes it clear that a delivery order rated under the regulation bearing the appropriate certification and the MRO symbol shall have the status of a delivery order bearing a preference rating wih an allotment symbol as provided in CMP Regulation No. 3.

The quantity restrictions of the regulation as amended provide that no person who uses the allotment symbol or preference ratings assigned by it to obtain any maintenance, repair or operating supplies, shall order for delivery during any calendar quarter maintenance, repair or operating supplies in an aggregate amounted exceeding one-quarter of the aggregate expenditures for maintenance, repair and operating supplies during the calendar year 1942 (or his fiscal year ending nearest to December 31, 1942), except that a person engaged in a seasonal business using such allotment symbol or preference rating may order for delivery during any calendar quarter up to, but not in excess of his aggregate expenditure for MRO items during the corresponding quarter of 1942 (or of such fiscal year). This amendment places the quantity limit definitely upon an "order" basis, rather than upon a receipt of delivery basis.

In determining the dollar amount expended for MRO supplies during an operating quarter, expenditures made without the use of preference rating or symbol plus amounts expended in acquiring minor capital additions, shall be included as well as MRO items obtained with the use of the allotment symbol or preference ratings assigned under CMP Regulation No. 5. In determining the amount expended for MRO items during base period, the same procedure shall be followed, except that expenditures for minor capital additions shall not be included.

Quantity restrictions on the use of MRO procedure are removed from manufacturers whose aggregate requirements for MRO supplies do not exceed $5,000 per year.

Persons (such as service repair shops) engaged in the business of doing maintenance or repair work for others may use the same allotment symbol and preference rating to obtain materials for the performance of such work which their customers would be entitled to use if the customers did the work themselves. Expenditures for materials needed for such work shall be treated as the customers expenditure for the purpose of computing quantity restrictions under Paragraph (f). However, persons engaged in such business may request allotments of controlled materials and preference ratings by filing Form CMP-4B, but if this procedure is followed, it must be used exclusively and customer's ratings or symbols may not be employed.

Persons requiring MRO items who are unable to obtain them with ratings assigned by CMP Regulation 5, as amended, and persons requiring controlled materials except aluminum, for MRO purposes, who are not listed in Schedule I or II may apply for a higher rating, or the right to use the MRO symbol to obtain copper and steel, to the nearest local office of the War Production Board, on Form PD-1A.

The amendment provides that when any Order in the E, L, or M series assigns a specific preference rating to the delivery of any particular material to be used by a particular industry or for a specified purpose, such rating shall control, and the preference ratings assigned in CMP Regulation 5 may not be used. For example, Order M-41 assigns a rating of A-10 to deliveries of chlorinated hydrocarbon solvents for use in the fumigation of stored products, including grain. A person who needs a chlorinated hydrocarbon solvent for such purpose, may apply a rating of A-10 to its delivery, and must not apply a rating assigned under CMP Regulation 5.

Attention is called to the fact that certain provisions and restrictions contained in P orders, including definitions, requirements for making applications and filing reports, and others, are retained in force under the amendment.

In a case where application has been filed with the War Production Board for reclassification of an industry in the Schedules of CMP Regulation 5, the War Production Board may (1) list such activity in either Schedule I or II or, (2) in special cases permit the applicant to operate under the Regulation to the same extent as though his business activity were included in one of the Schedules.

The following industries of interest to PIT AND QUARRY readers (classified according to their products) have been placed in the schedule indicated:

Building Materials:

Schedule	
I	Asbestos building materials
II	Asphaltic building products
II	Cement, Portland
II	Concrete building products

Miscellaneous Products:
I Abrasive products
II Ceramic and clay products
I Refractories
Conduct of the Following Businesses or Activities:
I Mining and quarrying

CONSTRUCTION MATERIALS ESSENTIAL.—In the list of essential industries and activities issued as part of Bulletin No. 11 as amended March 1, 1943, the Selective Service System showed the following (based on the War Manpower Commission's classifications):

"11. *Nonmetallic Mining and Processing and Quarrying.*—The mining and processing of rock salt, phosphate rock, sulphur, potash, asbestos, granite pyrites, graphite, borates and other salines, fluorspar, mica, talc, abrasive sands, and similar products. *Excludes all mined or quarried nonmetallic materials used exclusively in construction.*"

On April 5 Bulletin No. 11 was amended to delete the last sentence quoted above and shown in italic type and to chance the words "similar products" to "similar essential products." As amended, Activity and Occupation Bulletin No. 11 reads as follows:

NATIONAL HEADQUARTERS
SELECTIVE SERVICE SYSTEM
WASHINGTON, D. C.

Issued: /3-1/43
ACTIVITY AND OCCUPATIONAL BULLETIN No. 11
As Amended: 4/5/43
Subject: *Nonmetallic Mining and Processing and Quarrying*

PART. I. POLICIES THAT APPLY TO THIS ACTIVITY

General policies govern this activity.

PART II. ESSENTIAL ACTIVITIES

A. Production of:
Fullers' earth
Mica: Block and splittings
Plumbago (natural graphite), ground or refined
Rutile
Talc: Steatite
Zircon
Similar essential products
B. Engaging in the mining or quarrying of the following:
Abrasive grinding wheels, natural
Abrasive sand (quarried, pits and dredges)
Alum
Asbestos (long fiber only)
Borates (borax mining)
Colemanite
Fluorspar
Graphite
Grindstone
Kyanite
Magnesite
Mica
Oilstone
Phosphate rock
Potash
Pumice
Pumicite (volcanic ash)
Pyrites
Quartzite
Refractory minerals
Salt
Sulphur
Talc (steatite)
Wheels, grinding (natural)
Whetstone
Similar essential products

PART III. ESSENTIAL OCCUPATIONS

The essential occupations under this heading are the same as those listed in Part III of Activity and Occupation Bulletin No. 10.

PART III OF ACTIVITY AND OCCUPATION BULLETIN NO. 10
Essential Occupations

Accountant
Air-compressor operator
Assayer
Blacksmith
Blaster
Brakeman
Bulldozer or tractor operator
Cager
Carpenter, mine
Cashier (supervising)
Chemical engineer
Chemist, inorganic
Chief, clerk
Churn-drill operator
Civil engineer
Crane operator
Diamond driller
Draftsman, mine
Driller, machine
Electrical engineer
Electrician
Fireman, stationary boiler
Foreman, mine
Foreman, mill or surface
Geologist
Hoistman
Hydraulic monitor operator
Industrial-locomotive engineer
Loader, machine
Machinist, maintenance
Maintenance mechanic
Manager, mining
Manager, personnel
Master mechanic, maintenance
Mechanical engineer
Metallurgist
Millman (A general term for special operators engaged in the operation and adjustment of milling or ore dressing equipment. This title does not include helpers or mill laborers)
Mine captain
Mine motorman
Miner (all-around)
Mining engineer
Ore grader
Pipe fitter, maintenance
Power-house engineer
Power-shovel or dragline operator
Production checker
Pumpman
Purchasing agent
Rotary driller
Shaft repairman
Shift boss
Slusher operator
Sulphur station operator
Superintendent, mill or surface
Surveyor, mine
Switchboard operator (powerhouse)
Timberman
Tool dresser
Tracklayer
Track-moving-machine operator
Tractor or truck mechanic
Undercutter
Welder, arc or acetylene
Safety engineer

EMERGENCY PRIORITY ASSISTANCE.—Effective May 5, a new paragraph was added to P-56. It reads:

"(g-1) *Emergency Procedure:* In case of actual or impending breakdown, application for priorities assistance may be made on form PD-333 or by telegraph, and may be made either to the Washington office or the nearest regional or district office of the War Production Board."

With the exception of the A-2 rating assigned to mining operations not covered by mine serial numbers, P-56 carries no specific preference rating, V. P. Ahearn, executive secretary of the National Sand & Gravel Association, points out. Thus, the Director of the Mining Equipment Division is left free to assign whatever preference rating is necessary for continuous production in the mining industries. Under P-56 as amended in (g-1), producers may apply on Form PD-333 or may ask for priorities assistance by telegram, in the event of actual or impending breakdowns. Authority to use this procedure is not confined to plants with mine serial numbers, but may be used for any operation which qualifies as a mining enterprise.

Obviously (g-1) should not be invoked unless the producer is without authority to use a preference rating to protect his operations against an actual or an impending breakdown, and therefore if the A-2 should be adequate in the case of operations without mine serial numbers, or if the AA-1 rating is adequate for operations with mine serial numbers and covered by assigned quotas, the emergency procedure provided for in (g-1) should be regarded only as an additional protection. There may be instances in which even the AA-1 will not obtain the delivery of materials in time to prevent a breakdown, and therefore plants covered by mine serial numbers and assigned quotas, in such event, should use (g-1).

Form PD-333 may be obtained from regional or district offices of the War Production Board.[1] Since the telegraphic procedure is also available, it is assumed that generally producers will ask for priorities assistance by telegram rather than by filing PD-333. Such telegrams should be addressed as follows: E. W. Bauman, Chief, Nonmetallic Section, Mining Equipment Division, War Production Board, Temporary Building "R," 4th and Jefferson Drive, S. W., Washington, D. C. Mr. Bauman's telephone number is Republic 7500, extension 3334. He has several assistants who may be consulted whenever Mr. Bauman is unavailable: James Bacon, extension 72367; Daniel Dimmig and Harold Waterhouse, extension 4965; Maynard Boos and Jess Bennett, extension 71567.

Companies with mine serial numbers probably have received the PD-400-C form for quotas in the third quarter, a letter of explanation from Mr. Knoizen, and a revised Definition of Quota Items. The form is reproduced on this page and the letter and definitions are reprinted below.

Cast iron (pipe, castings, etc.) has been taken out of the weight-quota category and given a specific allocation, expressed in tons, under Part IV of PD-400-C. There have been some rearrangements of specific items which are regarded as controlled materials, as explained in the new Definition of Quota Items.

Producers are instructed in column 4 to insert authorizations for specific items in the April-June quotas, and column 5 will show their estimated receipts in that quarter. If the figures in column 5 exceed the figures in column 4, appropriate explanations should be made in a letter transmitting the PD-400-C application for the third quarter. Producers were permitted, when their quotas were assigned for the second quarter, to deduct from their first quarter quotas deliveries received prior to April 21 if purchase orders were placed before April 1 and if charging such deliveries received prior to April 21 against their first quarter quota did not exhaust that first quarter quota. If the figure in column 5 does not exceed the figure in colum 4, then no explanations are necessary.

Other items have been added to Part IV in addition to cast iron, including drill steel (shanked and threaded). As an inventory control, producers are required to report on lumber, but each producer has a blanket AA-3 rating under M-208, and he does not need a lumber allocation from the Mining Division. However, if the AA-3 is not enough, then producers may use an AA-1 rating under the dollar-value quota for operating supplies, deducting the cost of the lumber from that quota.

Whenever materials listed in items 42 to 55 inclusive are required, producers with mine serial numbers will get a quota expressed either as a dollar value or in terms of weights. In addition thereto they will get a dollar-value quota for fabricated repair parts and a separate dollar-value quota for operating supplies. Producers are cautioned that the latter quota does not include any items in Part

[1][See list, page 51, PIT AND QUARRY, September, 1942.—ED.]

III and Part IV, and their operating supplies quota furthermore should not include any item for which a preference rating is not necessary or as to which priorities assistance is obtained from another WPB order (like truck repair parts and lumber).

Producers should consult the Definition of Quota Items for typical materials which should be bought under their quota for fabricated repair parts. Unless the item is listed under controlled materials, or as an operating supply within the division's definition, they should use their quota for fabricated repair parts in its procurement. Generally speaking, they should use their quota for repair parts for "types of mining equipment commonly used in the mining industry."

Readers have already been informed regarding the procurement of new equipment covered by the Revised L-192 Order.[2] For equipment not listed in L-192, PD-731 applications should be submitted to Mr. Bauman for consideration. Even when a PD-556 application is submitted under L-192, a PD-731 application should be filed concurrently with Mr. Bauman accompanied by a letter of transmittal, setting forth that the applicant has already filed a PD-556 for the equipment in question.

Office Supplies: Producers may use their quota for operating supplies in obtaining office supplies utilized on the site of operations covered by mine serial numbers, but P-56 does not cover the procurement of office supplies for general offices located away from actual operations. CMP-5 can be used for that purpose. Paragraph (b)(2) of CMP-5 reads as follows:

" 'Operating supplies' means any materials or products which are normally carried by a person as operating supplies according to established accounting practice and are not included in his finished product, except that materials included in such product which are normally chargeable to operating expense may be treated as operating supplies. The term shall also include such items as hand tools, customarily purchased by the particular employer for sale to his employees for use only in his business, in those cases where they would constitute operating supplies under established accounting practice if issued to employees without charge. The term shall not include any of the items specified in List A attached."

As members of the "Mining and Quarrying" industry producers are allowed to use an AA-1 rating for the procurement of office supplies whenever the P-56 Order is unavailable to them. Under the provisions of paragraph (d)(2) of CMP-5, they should use the following endorsement on their purchase orders whenever they must have a preference rating for the procurement of office supplies:

"Preference rating AA-1—MRO. The undersigned certifies, subject to the criminal penalties for misrepresentation contained in section 35(A) of the United States Criminal Code, that the items covered by this order are required for essential maintenance, repair or operating supplies; that this order is rated and placed in compliance with CMP Regulation No. 5; and that the delivery requested will not result in a violation of the quantity restrictions contained in paragraph (f) of said regulation."

[2][See *Construction Equipment Order Amended*, PIT AND QUARRY, May, 1943, pages 53-56.—ED.]

The letter from Mr. Knoizen follows:

PDL-2158
April 23, 1943
(8-43)
Circular to Non-Metallic Operators Holding Serial Numbers Under Order P-56
Re: Third Quarter 1943 Quota for Maintenance, Repairs and Operating Supplies.

General

1. Enclosed are PD-400-C forms[3] which are to be used in applying for quotas for controlled materials and other materials for maintenance, repair and operating supplies during the third quarter of 1943.

2. Five copies of the forms are enclosed for each of your mines. One is for your work sheet. Four (4) copies must be returned, each *completely filled in and signed*. No application will be processed that is incomplete.

(Note): Where more than one mine serial number has been assigned to a company within the same state and a combined quota is desired for these mines, the following procedure should be used. Prepare and submit only one copy for each mine indicating data requested in Sections I and II. Prepare a complete set (4 copies) listing all serial numbers and completing all sections to indicate the combined mine figures in columns 3 to 8 inclusive.

3. Completed forms must be returned by May 20, 1943. The serial number of delinquent operators is subject to immediate cancellation. This filing date is necessary in order that the total requirements for materials of the mining industry may be completed and placed before the Requirements Committee of the War Production Board on or before June 1, so that the mining industry may receive an allotment sufficient to cover requirements.

4. The application of ratings and allotment numbers against your assigned quota will be on the basis of purchase orders placed similar to the procedure inaugurated during the second quarter.

5. Even though you may already have placed certain orders for delivery in the third quarter, the requirements you report in column 8 for estimated quarterly purchases should include your total requirements for the quarter. Then the orders already placed for delivery in the third quarter should be deducted from the quota assigned in column 9 of your third quarter certificate.

6. A revised definition of quota items as of April 15 is enclosed and we recommend that a thorough study of this be made before proceeding with filling out the PD-400-C forms.

Instructions

The name of the company should be identical with the name of the certified serial number order.

The address should be that to which you wish the certificate sent.

Section I—Production and Shipment

Wherever possible, the producer should designate the ratings of the projects to which their product is consigned. If ratings are not available, then submit information concerning your customers, divided into groups, in the order of their importance to the war effort, showing percentage of your total production you ship to each. This information may be attached as a rider or included in the space reserved for remarks on the form.

Section II—Employment Data

This section is self-explanatory and is required for statistical purposes.

Section III — Controlled Material Requirements Data Maintenance and Repairs.

Be sure to list your inventory of *all items indicated* in this Section. A breakdown of items considered as controlled materials is listed for your convenience and your requirements of each should be listed and expressed in the unit of weight indicated.

Section IV — Other Material Requirements Data for Maintenance and Repairs.

Include all materials for maintenance and repair in this section which are essential to the operation of a mine and mining machinery not already included in foregoing section. You will note that this quarter requirements for grinding media are listed as a B product, Item 55, whereas formerly it was included in the weight quota. Under Item 57 operating supplies—the amount you place in column 8 should be based only on purchase orders for material on which ratings will be required.

A. S. KNOIZEN,
Director of the
Mining Equipment Division.

The definition of Quota Items reads as follows:

PDL-421 (Revised)

DEFINITION OF QUOTA ITEMS
Revised April 15, 1943
Under Preference Rating Order P-56, as Amended

The following tabulation indicates the procedure for the purchase of various type of maintenance, repair and operating supplies under Preference Rating Order No. P-56. The most common items are grouped below according to the manner in which they are to be obtained. When questions arise concerning items other than those listed, you should consult the Mining Equipment Division, War Production Board, Temporary Building R, Washington, D. C., or your Regional Technical Advisor.

I. MAINTENANCE, REPAIR AND OPERATING SUPPLIES

Mines holding serial numbers under Order P-56 and having filed PD-400 forms receive each quarter an authorization on a PD-400 certificate to endorse AA-1 ratings for repair parts and materials and operating supplies. For controlled materials (steel, copper, and aluminum) an allotment is assigned in terms of weight. For non-controlled materials (other metals and critical materials not under such rigid control), quotas may be assigned in terms of weight, dollar value, or quantity. For repair parts for ordinary mining machinery and equipment and for operating supplies, quotas are assigned in terms of dollar value. Before any preference ratings can be endorsed under Order P-56, definite quotas must have been obtained from the Mining Equipment Division by application on the proper form of the PD-400 series.

1. *Controlled Materials Allotment.* (Part III of PD-400-A and C. Part II of PD-400-B.) An allotment of controlled materials for repair and maintenance is made in terms of weight for:

(1) Carbon Steel
(2) Alloy Steel, including Stainless Steel
(3) Copper Base Alloys
(4) Copper
(5) Aluminum

The following list includes the principal types of controlled materials which are used by mines and also item number under which they should be listed on the PD-400.

Ball-mill liners—Item 7 or 20
Castings (steel)—Items 7 or 20
Castings (copper and copper-base alloys)—Item 33
Copper wire and cable (bare and insulated)—Items 30, 31
Crusher jaws—Item 7 or 20
Drill Steel (rough bar stock)—Item 1
Forgings (rough) "gross weight"—Item 13 or 24
Nails—Item 12
Pipe and tubing (carbon steel)—Item 3 and 10, respectively
Pipe and tubing (alloy steel)—Item 17 and 21, respectively
Pipe and tubing (copper base alloy)—Item 28
Pipe and tubing (copper)—Item 29
Plate for chutes, etc.—Item 4 or 18
Rail and accessories—Item 5
Reinforcing bars—Item 1
Rod-mill rods—Item 1b
Shafting—Item 1
Sheets for chutes, etc.—Item 6 or 19
Steel bars—Item 1 or 15
Steel cable—Item 12 or 23
Steel mine ties—Item 5e
Steel wire (woven, twisted, welded fabric and all other wire products) Item 12 or 23
Structural shapes—Item 8
Track accessories—Item 5e
Wheels and axles—Item 11 or 22
Wire rope and cable —Item 12 or 23
Wire rods—Item 12 or 23

2. *Quota for Other Materials* (Non-controlled materials).

a. *Miscellaneous Materials.*

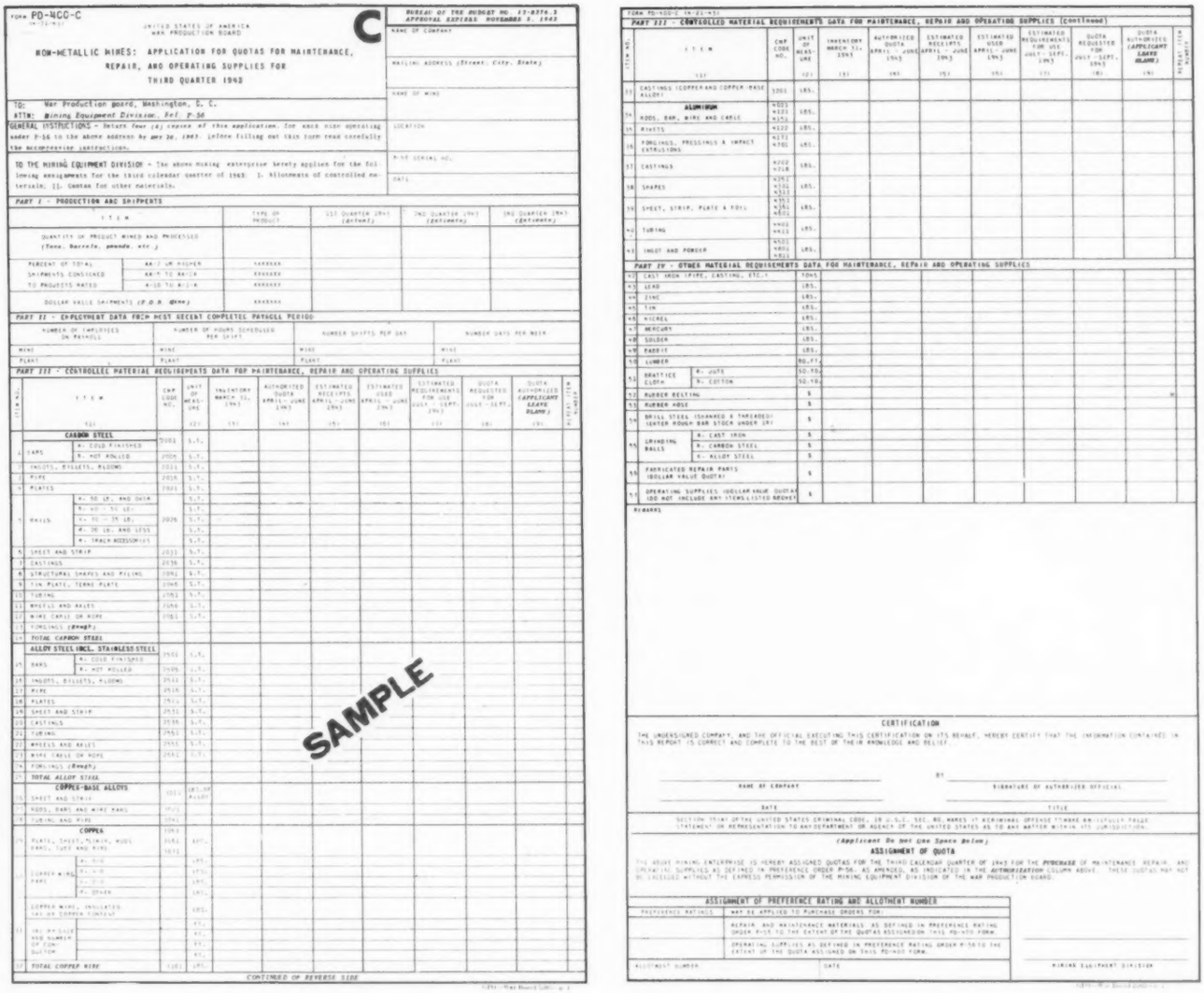
In certain instances it is necessary to know the requirements for specific items in terms of weight, dollar value or other units of measure. The following items are to be reported separately: cast iron—item 42, lead—item 43, zinc—item 44, tin—item 45, nickel—item 46, mercury—item 47, solder—item 48, babbit—item 49, brattice cloth—item 51, rubber belting—item 52, rubber hose—item 53, drill steel (shanked and threaded only)—item 54, grinding balls (cast iron, carbon steel and alloy steel)—item 55, lumber—item 50 is to be reported in terms of board feet. However, it should be obtained under the provisions of Order M-208 as amended, under which an AA-3 rating is authorized. In the event ratings higher than AA-3 are necessary to obtain delivery, an AA-1 rating under the dollar value quota for operating supplies may be applied and cost deducted from that quota.

b. *Fabricated Repair Parts, Dollar-Value Quota.*

This dollar value quota includes fabricated repair parts only for types of mining equipment commonly used in the mining industry. For example, repair parts for such equipment and machines as:

Ball mills
Classifiers
Compressors
Conveyors
Crushers
Cutting machines
Engines
Hoists
Jigs
Locomotives

[3][Reproduced on page 51.—ED.]


FORM PD-400-C
UNITED STATES OF AMERICA
WAR PRODUCTION BOARD
C
NON-METALLIC MINES: APPLICATION FOR QUOTAS FOR MAINTENANCE, REPAIR, AND OPERATING SUPPLIES FOR THIRD QUARTER 1943
BUREAU OF THE BUDGET NO. 49-R374.3
APPROVAL EXPIRES NOVEMBER 5, 1943
NAME OF COMPANY
MAILING ADDRESS (Street, City, State)
NAME OF MINE
LOCATION
MINE SERIAL NO.
DATE
TO: War Production Board, Washington, D. C.
ATTN: Mining Equipment Division, Ref. P-56
GENERAL INSTRUCTIONS - Retain four (4) copies of this application. For each mine operating under P-56 to the above address by may 20, 1943. Before filling out this form read carefully the accompanying instruction.
TO THE MINING EQUIPMENT DIVISION - The above mining enterprise hereby applies for the following assignments for the third calendar quarter of 1943. I. Allotments of controlled materials. II. Quotas for other materials.
PART I - PRODUCTION AND SHIPMENTS
ITEM
TYPE OF PRODUCT
1ST QUARTER 1943 (Actual)
2ND QUARTER 1943 (Estimate)
3RD QUARTER 1943 (Estimate)
QUANTITY OF PRODUCT MINED AND PROCESSED (Tons, Barrels, pounds, etc.)
PERCENT OF TOTAL SHIPMENTS CONSIGNED TO PRODUCER RATED
AA-1 OR HIGHER
AA-1 TO AA-3
AA-3 TO A-1
A-1A TO A-2
DOLLAR VALUE SHIPMENTS (F.O.B. Mine)
PART II - EMPLOYMENT DATA FOR MOST RECENT COMPLETED PAYROLL PERIOD
NUMBER OF EMPLOYEES ON PAYROLL
NUMBER OF HOURS SCHEDULED PER SHIFT
NUMBER SHIFTS PER DAY
NUMBER DAYS PER WEEK
MINE
PLANT
PART III - CONTROLLED MATERIAL REQUIREMENTS DATA FOR MAINTENANCE, REPAIR AND OPERATING SUPPLIES
ITEM NO.
ITEM
CMP CODE NO.
UNIT OF MEASURE
INVENTORY MARCH 31, 1943
AUTHORIZED QUOTA APRIL - JUNE 1943
ESTIMATED RECEIPTS APRIL - JUNE 1943
ESTIMATED USED APRIL - JUNE 1943
ESTIMATED REQUIREMENTS FOR USE JULY - SEPT. 1943
QUOTA REQUESTED FOR JULY - SEPT. 1943
QUOTA AUTHORIZED (APPLICANT LEAVE BLANK)
REMARKS ITEM NUMBER
CARBON STEEL
1 BARS
A- COLD FINISHED
B- HOT ROLLED
INGOTS, BILLETS, BLOOMS
PIPE
PLATES
A- 50 LB. AND OVER
B- 40 LB. TO 50 LB.
C- 25 LB. TO 39 LB.
D- 24 LB. AND LESS
E- TRACK ACCESSORIES
5 SHEET AND STRIP
7 CASTINGS
8 STRUCTURAL SHAPES AND PILING
9 TIN PLATE, TERNE PLATE
10 TUBING
11 WHEELS AND AXLES
12 WIRE CABLE OR ROPE
13 FORGINGS (Rough)
14 TOTAL CARBON STEEL
ALLOY STEEL INCL. STAINLESS STEEL
15 BARS
A- COLD FINISHED
B- HOT ROLLED
16 INGOTS, BILLETS, BLOOMS
17 PIPE
18 PLATES
19 SHEET AND STRIP
20 CASTINGS
21 TUBING
22 WHEELS AND AXLES
23 WIRE CABLE OR ROPE
24 FORGINGS (Rough)
25 TOTAL ALLOY STEEL
COPPER-BASE ALLOYS
151 SHEET AND STRIP
152 RODS, BARS AND WIRE (HOT)
153 TUBING AND PIPE
COPPER
154 PLATES, SHEET, STRIP, RODS, BARS, TUBE AND WIRE
COPPER WIRE
A- 0.0 TO 0.0
B- 0.0 TO 0.0
C- 0.0 TO 0.0
D- OTHER
COPPER WIRE, INSULATED
157 TOTAL COPPER WIRE
SAMPLE
CONTINUED ON REVERSE SIDE
FORM PD-400-C (4-21-43)
PART III - CONTROLLED MATERIAL REQUIREMENTS DATA FOR MAINTENANCE, REPAIR AND OPERATING SUPPLIES (Continued)
ITEM NO.
ITEM
CMP CODE NO.
UNIT OF MEASURE
INVENTORY MARCH 31, 1943
AUTHORIZED QUOTA APRIL - JUNE 1943
ESTIMATED RECEIPTS APRIL - JUNE 1943
ESTIMATED USED APRIL - JUNE 1943
ESTIMATED REQUIREMENTS FOR USE JULY - SEPT. 1943
QUOTA REQUESTED FOR JULY - SEPT. 1943
QUOTA AUTHORIZED (APPLICANT LEAVE BLANK)
REMARKS ITEM NUMBER
31 CASTINGS (COPPER AND COPPER-BASE ALLOY)
ALUMINUM
34 RODS, BAR, WIRE AND CABLE
35 RIVETS
36 FORGINGS, PRESSINGS & IMPACT EXTRUSIONS
37 CASTINGS
38 SHAPES
39 SHEET, STRIP, PLATE & FOIL
40 TUBING
41 INGOT AND POWDER
PART IV - OTHER MATERIAL REQUIREMENTS DATA FOR MAINTENANCE, REPAIR AND OPERATING SUPPLIES
42 CAST IRON (PIPE, CASTING, ETC.)
43 LEAD
44 ZINC
45 TIN
46 NICKEL
47 MERCURY
48 SOLDER
49 BABBIT
50 LUMBER
51 BRATTICE CLOTH
A- JUTE
B- COTTON
52 RUBBER BELTING
53 RUBBER HOSE
54 DRILL STEEL (SHANKED & THREADED; CENTER ROUGH BAR STOCK UNDER 1R)
55 GRINDING BALLS
A- CAST IRON
B- CARBON STEEL
C- ALLOY STEEL
56 FABRICATED REPAIR PARTS (DOLLAR VALUE QUOTA)
57 OPERATING SUPPLIES (DOLLAR VALUE QUOTA) (DO NOT INCLUDE ANY ITEMS LISTED ABOVE)
REMARKS
CERTIFICATION
THE UNDERSIGNED COMPANY, AND THE OFFICIAL EXECUTING THIS CERTIFICATION ON ITS BEHALF, HEREBY CERTIFY THAT THE INFORMATION CONTAINED IN THIS REPORT IS CORRECT AND COMPLETE TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.
BY
NAME OF COMPANY
SIGNATURE OF AUTHORIZED OFFICIAL
DATE
TITLE
SECTION 1001 OF THE UNITED STATES CRIMINAL CODE, 18 U.S.C. SEC. 80, MAKES IT A CRIMINAL OFFENSE TO MAKE ANY WILFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.
(Applicant Do not Use Space Below)
ASSIGNMENT OF QUOTA
THE ABOVE MINING ENTERPRISE IS HEREBY ASSIGNED QUOTAS FOR THE THIRD CALENDAR QUARTER OF 1943 FOR THE PURCHASE OF MAINTENANCE, REPAIR, AND OPERATING SUPPLIES AS DEFINED IN PREFERENCE ORDER P-56, AS AMENDED, AS INDICATED IN THE AUTHORIZATION COLUMN ABOVE. THESE QUOTAS MAY NOT BE EXCEEDED WITHOUT THE EXPRESS PERMISSION OF THE MINING EQUIPMENT DIVISION OF THE WAR PRODUCTION BOARD.
ASSIGNMENT OF PREFERENCE RATING AND ALLOTMENT NUMBER
PREFERENCE RATING
MAY BE APPLIED TO PURCHASE ORDERS FOR
REPAIR AND MAINTENANCE MATERIALS AS DEFINED IN PREFERENCE RATING ORDER P-56 TO THE EXTENT OF THE QUOTAS ASSIGNED ON THIS PD-400 FORM.
OPERATING SUPPLIES AS DEFINED IN PREFERENCE RATING ORDER P-56 TO THE EXTENT OF THE QUOTA ASSIGNED ON THIS PD-400 FORM.
ALLOTMENT NUMBER
DATE
MINING EQUIPMENT DIVISION

Front and back reproduction (greatly reduced in size) of revised Form PD-400-C.

Loaders
Mine cars and skips
Motors
Power shovels
Pumps
Rock drills
Tractors
Welding equipment
Etc.

Other fabricated materials such as the following items should be included in the dollar-value quota for fabricated repair parts:
Belting (transmission only)
Bolts and nuts
Canvas bags for driers
Drill bits (detachable)
Ducking for concentrating tables
Electrical repair parts and accessories
Elevator cups
Filter cloth
Hand tools for mechanics and carpenters, etc.
Picks and shovels
Pipe fittings
Rubber products (miscellaneous)
Safety accessories, as hard hats, goggles, etc.
Screen cloth and jackets
Screens (punched and woven)
Sheaves
Sieve cloths for jigs
Transmission-line accessories
Valves and pipe accessories
Welding rod and welding materials

c. *Operating Supplies, Dollar - Value - Quota.* (Part IV, Item 57, PD-400-A and C. Part III, Item 57, PD-400-B).

Your quota request for operating supplies should only cover those expendable items normally carried in this classification by common operating practice *for which preference ratings are required.* Among some of the common items which are to be included in this category are the following:

Batteries (dry-cell "shooting")
Belt dressing
Blast caps
Carbide
Chemicals
Explosives
Flame safety lamps
Fuse
Nitramon blasting agent
Paints
Respirators
Self rescuers
Wire brushes
Welders' gloves

II. New Equipment

To obtain new equipment and materials for replacement, development and expansion, including all types of equipment commonly used in the mining industry, an application must be made to the Mining Equipment Division for a specific preference rating to cover each order for equipment. The usual information must be supplied to the Mining Equipment Division for each application. Following are a few items which require specific ratings about which doubt has arisen in the past.

Anemometers
Charging equipment for electric lamps
Detectors, gas
Electric cap lamps
Electric motors (over 7½ h.p.)
Gas masks
Inhalators
Mine cars
Mine skips
Oxygen breathing apparatus
Pull-wire fuse lighters
Rock drills
Rock-dusting machines
Welding equipment

A. S. Knoizen,
Director of the
Mining Equipment Division.

JOB-CHANGING CHECKED.— Restrictions on the free transfer of workers from one job to another are provided by Regulation 4 of the War Manpower Commission, issued pursuant to Executive Order 9328 of April 8, 1943, otherwise known as the "Hold-the-Line" Order. The regulation became effective on April 18. It applies on a nation-wide basis with special provisions for areas or industries in which approved WMC Stabilization Programs exist.

Transfers of workers from essential to other essential activities may be made without regard to change in wage rates or salary scale if in the interest of the war effort. Statements of availability issued by employers or WMC officials serve as evidence that transfers are being made in furtherance of the war effort.

In areas where Employment Stabilization Programs are in effect, workers may transfer in accordance with the terms of such programs. In other areas they may transfer to jobs at the same or lower wage rates. No restriction, however, is placed upon transfer between activities not included in the essential activities list.

Workers may shift from nonessential activities to jobs in essential activities even if higher wages are paid.

Workers are not permitted to shift from one job in an essential industry to another job in an essential industry if the second job offers him more money. The only exception to this rule is in cases where the employer is covered by an Employment Stabilization Program. The change could then be made at a higher wage rate if the worker leaves his job for reasons which are consistent with the provisions of these plans.

The text of the order follows:

WAR MANPOWER COMMISSION
REGULATION NO. 4
RESTRICTING TRANSFER OF WORKERS

Pursuant to the authority vested in me as Chairman of the War Manpower Commission by Executive Order 9328, dated April 8, 1943, I hereby prescribe the following regulations:

1. *Workers previously engaged in other than essential activities for work in essential activities.*

Any employer engaged in an essential activity may hire for work in such activity any new employee who for the preceding 30 days was not engaged in an essential activity.

2. *Workers previously engaged in essential activities for work in other than essential activities.*

No employer shall hire for work in an activity other than an essential activity any new employee who during the preceding 30-day period has engaged in an essential activity if the wage or salary rate to be paid by the employer would exceed the rate most recently earned by such employee.

3. *Workers previously engaged in essential activities for work in other essential activities.*

No employer shall hire (except as provided for in Section 4 of this regulation) for work in an essential activity any new employee who, during the preceding 30-day period, was engaged in an essential activity if the salary or wage rate to be paid by the employer would exceed the rate most recently received during such period by the employee.

4. *Workers previously engaged in essential activities for work in other essential activities in Areas or Industries subject to War Manpower Commission Employment Stabilization Programs.*

A. Any employer engaged in an essential activity may hire for work in such activity any new employee who, during the preceding 30-day period, was engaged in an essential activity, without regard to his preceding wage rate or salary scale, providing such hiring is subject to, and permitted under an employment stabilization program approved by the War Manpower Commission.

B. A statement of availability shall be issued to any worker by his last employer or by the War Manpower Commission as may be provided in such employment stabilization programs and whenever the worker:

(1) is discharged by his last employer,

(2) is laid off for an indefinite period or for a period of 7 or more days, or

(3) can establish that his present employment does not utilize him at his highest skill or that he is not being employed at full time.

No statement of availability shall be issued solely on the ground that an individual's wage or salary rate is substantially less than that prevailing in the locality for the same or substantialy similar work.

Any such statement shall contain the worker's name, Social Security number, if any, the name and address of the issuing employer or War Manpower Commission officer and office, the date of issuance, and a statement to the effect that the worker may be hired elsewhere in an essential activity. The inclusion by an employer on such notice of any information other than that required by this regulation shall be deemed to be a violation of this regulation.

5. *Acceptance of employment by workers.*

No individual shall accept new employment with an employer if the employer is prohibited from hiring him under this regulation.

6. *Penalties.*

The hiring by an employer of a new employee, or the acceptance by an individual of new employment, in violation of this regulation is subject to the penal provisions of the Act of October 2, 1942 (Pub. No. 729, 77th Cong.). The Provisions of Sec. 4001.10 of the Regulations of the Economic Stabilization Director, issued October 27, 1942 apply to any wages or salaries paid in violation of this regulation.

7. *Definitions.*

Essential activity means any activity in the War Manpower Commission List of Essential Activities and any activity approved by a Regional Manpower Director as a locally needed activity.

New employee means any individual who has not been in the employ of the hiring employer at any time during the preceding 30-day period.

New employment means employment with an employer by whom the individual has not been employed at any time during the 30-day period preceding such employment.

8. *Employee-Employer Agreements.*

Nothing in this Regulation shall be construed to prejudice existing rights of an employee under any agreement with his employer.

9. *Effective Date.*

This regulation shall become effective at 12:01 A. M. Sunday, April 18, 1943.

PAUL V. MCNUTT, *Chairman*
War Manpower Commission
April 16, 1943

Approved:

JAMES F. BYRNES
Economic Stabilization Director
April 16, 1943

MICA DEMAND CONTINUES.— America's need for mica has not diminished despite recent reports that a substitute has been found, according to the Mica-Graphite Division, War Production Board. The military requirements for mica, especially in the higher qualities, are not yet affected by any substitutes.

While it is true that several promising new materials are in the process of development, and while each of these has some characteristics similar to those of mica, the division points out in a letter to the industry that none of them possess the particular combination of characteristics enjoyed by mica.

"Each of them may, if or when they are fully developed and their use approved and adopted by the Armed Services, replace mica to a limited extent in certain applications," the letter says. "But none of these substitutes is as yet in actual production on any scale beyond laboratory work, and further, there has to date been very little actual adoption either by the Armed Services or by prime contractors of components containing any of these new materials as a replacement for mica.

"While these substitutes may eventually replace mica to the extent of 10 to 15 per cent. of the total mica requirements, the remaining requirements will still absorb all expected production of mica in the higher qualities.

"The military program still requires very large quantities of mica, especially in the better qualities. No mica miner should feel that his output is no longer needed for the war effort, because the opposite is the case. It is expected that all possible production of high quality mica will continue to be absorbed for military uses for the duration of the war. United States government agencies, both in this country and in certain foreign countries, will continue to procure mica and no reduction in the buying program is contemplated."

PRIORITY APPLICATIONS UNDER PD-1A.—Beginning May 8, all applications for priority ratings under form PD-1A must be filed with the nearest district office of the priorities division of WPB. Formerly PD-1A applications had been sent direct to Washington for processing.

Form PD-1A is used chiefly for obtaining priorities assistance on capital equipment such as machinery, tools and metal products. Under the new regulation, applications are screened at the district offices, then sent to the regional headquarters for processing. Regional offices now can process ratings calling for materials worth up to $500. Previously regional offices gave ratings only up to $100.

Applications sent to Washington instead of to district offices will be returned to the field office where it must go through the channels set up under the new regulation.

Field offices now are processing 80 per cent. of all the applications for priority ratings.

TALC RESTRICTIONS EASED.— Changing conditions in the talc industry which altered the supply and demand situation resulted April 30 in the issuance by the War Production Board of Conservation Order M-239 as amended. The new regulation removes the existing restrictions on the delivery and use of steatite talc for other than specified uses, establishes controls over the production and grading or steatite talc, provides a system of inventory control based on maximum consumer stocks, and releases all frozen stocks of steatite talc purchased prior to the original issuance of M-239 (October 13, 1942).

The three objectives of the amended order are:

The continuance of talc production at a high level, thus eliminating the threat to maintenance of production facilities, which might result from a loss of manpower.

The insuring of a constant and adequate supply.

The offering of relief to those persons suffering hardship under restrictions imposed by the original order.

Consumer inventory restrictions on steatite talc under the amended order vary according to the kind of talc and its intended use. For instance, 12-months' inventories are permitted for war purposes and most essential civilian uses. For such other civilian uses as talcum powder, cosmetics, toilet preparations, insecticides, foot powder, and roofing materials, a two months' inventory is allowed. For all other uses, a three months' supply is permitted.

In the case of talc other than steatite talc, regardless of use, a six-months' supply is permitted, while in the case of steatite talc to be held by dealers or distributors, a two-months' supply is allowed.

Producers will file monthly reports on Form PD-862 on all types of talc received and ground. Consumers will report on Form PD-863, on a quarterly basis, all types of talc received or used, and indicate the end-use to which this material is put.

UP-RATING WITH ALLOTMENT NUMBERS.—The use of allotment numbers as an up-rating device for obtaining non-controlled materials will end on June 30, 1943, the Controlled Materials Plan Division, of the War Production Board, announced May 18. This action was taken in CMP Regulation No. 3, as amended. Orders placed during the second quarter, accompanied by preference rating and allotment number, will continue to be "up-rated" orders. However, the application of an allotment number to a rated order after June 30, 1943, will not have any effect on the rating. For example, an order placed in June with a rating of AA-2X to which an allotment number is applied in July, and an order placed in July with a rating of AA-2X and bearing an allotment number, will both be deemed equal in rating to orders rated AA-2X to which no allotment number or symbol is applied.

This means that the top preference ratings for orders placed after June 30, 1943, will be: AAA, AA-1, AA-2, AA-2X, AA-3, AA-4, AA-5, etc., regardless of whether or not they are accompanied by allotment numbers.

EDITORIAL

Strikes in War Time

IN normal times people who are not personally concerned with the issues involved in labor troubles, either as employers or employees, show little interest in the underlying problems. Disputes about wages, working conditions, seniority rights, the closed shop, the check-off and similar subjects of controversy are felt to be the prerogative of employers and employees and not matters of "public" interest. However, when the "public"—meaning those persons not directly involved—is discommoded, when public transportation agencies are rendered inoperative, when public utility services providing power and light cease to function, then the controversy—but still not the underlying problem—is brought into the field of "public" interests, and the strike, instead of being a private protest on the part of employees against the policies or actions of a private employer, is suddenly viewed as a blow against the "public", even as an attack on the state.

War does not lessen the number of conditions or problems that are deemed sufficient to justify the use of the strike weapon; it increases them. Whereas in normal times the cost of living may exhibit only minor fluctuations, in war time these changes are numerous and serious. Even under price control as now practiced the cost of living continues to rise with a rapidity and to a degree that presents new and insurmountable problems to the average worker. Whereas in normal times workers may be too ready to feel that their complaints are fully justified, in war time they must give careful thought to the effects of the action on "public" opinion which, though dormant or indifferent under peace-time conditions, rises to the height of righteous indignation under the stress of war. What would in normal times be considered a reasonable exercise of the right to cease work in protest against what is thought to be unfairness or oppression becomes in war time a challenge to the nation's sense of justice and fair play. "Public" opinion does not grant to workers in war time the same freedom of action that is accepted as a matter of course at other times.

Ordinarily the decision to strike is not hastily made. What the workers may call "grievances" increase in number as time goes on; their cumulative effect is not to accustom the aggrieved persons to the trouble that bothers them but rather to increase their resentment against conditions that they feel to be oppressive. The decision to strike is, therefore, more often the result of long and careful consideration and of repeated and futile attempts to arrive at compromise agreements that will soften the bitterness by at least partially alleviating the conditions that have produced the discontent. It is made only after the chances of success have been calculated and the fairness of the protest thoughtfully considered, because failure is even more dangerous and more costly to the interests of the workers than is acceptance of the conditions complained of.

In time of war this deliberative process becomes even slower, because considerations of public policy, national interest, and "public" support take on a new and vastly greater importance. No union official worthy of the trust placed in him urges members of his organization to strike in war time, even if all the avenues of peaceful settlement have been travelled without success. He knows too well that the "public" antagonism which such action would evoke is far too high a price to pay for a favorable but temporary result. He knows that the gains made by workers, since organized labor first made the problems of workers the responsibility of whole trades rather than of individual workers, have been attained by a patient struggle carried on over a long period of time, fraught with sacrifice and great risk, and that the price already paid has been too high to have the value of those achievements endangered by ill-considered and hasty action for temporary advantages.

Yet, in spite of the nation's needs for the equipment necessary for the successful carrying on of the war, in spite of appeals to their patriotism and spirit of self-sacrifice, in spite of temperate advice by their leaders, in spite even of the pleas of the President of the United States, the number and seriousness of strikes in war industries increase. Here is a movement of the rank and file that has shown no disposition to waive its own interests, as it sees them, in the face of national danger. These outbursts of feeling, this disregard of appeals to their highest emotions, spring from something more fundamental than the mere momentary selfishness or obstinacy that might be easily roused by their leaders in ordinary times. This readiness to overlook labor's pledge not to strike stems from something more important than whimsy or lust for power. Workers say that that pledge has been used against them by employers who have deliberately delayed the granting of relief from conditions that have aroused labor's resentment by passing the complaints on to a labor board already overloaded with thousands of like cases.

WE on the outside—we who are neither the employers nor the employees in the situations now made tense by strikes—we should make every effort of which intelligence is capable in an attempt to understand this problem. We must not forget the nation's promise inherent in the formation of the National War Labor Board and its task of guaranteeing the process of collective bargaining. We should not forget either the effect of the "hold-the-line" order in destroying that board's freedom of action and the virtual extinction of collective bargaining that has followed.

The strike still appears to be labor's most effective means of getting public recognition of its grievances; certainly it is the weapon that enjoys the sanction of tradition; surely, too, no one has offered it a better tool for arousing public interest in its problems. The solution will not be found in legislation or in the appointment of the proper officials; it will be found only in intelligent understanding on the part of the public as well as management.

Dry-Screening Machine Retains Fines Needed to Meet Sand Specifications

Looking down on the dry-sand-screening apparatus. Sand belt extends to left.

another ON THE SPOT report

EXECUTIVES at the Burlington, Massachusetts, pit of the Highland Sand & Gravel Company, of West Roxbury, Massachusetts, were faced with the problem of producing a clean plaster sand containing from 6 per cent. of minus-200-mesh material. The process used to wash and classify the sand being produced in their existing plant was resulting in a good job of cleaning, but it removed too much of the fines along with the deleterious materials to enable the rather exacting plaster-sand specifications to be met without the remixing of finished products. In addition, the desired type of plaster sand was needed in quantities greater than the existing plant capacity and the supply of bank-run material could furnish without cutting down on the production of other needed types of sand.

To meet this requirement Alfred N. Foley, superintendent of the company's Burlington pit, designed and built a dry sand-screening apparatus, entirely separate from the main crushing, screening and washing plant, with a capacity of 60 tons of the desired plaster sand per hour.

Since cleanliness was an important feature of the specifications, Mr. Foley made screen and colorimetric tests to determine at what depth below the surface of the ground the glacial deposit of sand and gravel was properly free of deleterious material so that washing would be unnecessary. In a section of the pit considerably removed from the area in which material for the existing plant was being excavated he found that the removal of 6 feet of earth and silt-infiltrated sand and gravel would expose material of quite suitable cleanliness. For existing plant production only about 2 feet of earth overburden was being removed, the plant washing process being depended on to take out the small amount of silt remaining.

Then he took a double-deck 3- by 8-foot Niagara vibrating screen and mounted it within a cross-braced angle-iron frame. Above the screen, and supported by the angle-iron corner posts, he mounted a steel hopper of 4-cubic yard capacity manufactured by The Anderson Engineering Company. To transfer material from the hopper to the screen he attached an Underwood reciprocating tray feeder 24 inches wide, with eccentric drive and an adjustable throw which he set at 4 inches.

Mr. Foley did not, originally, intend to use both decks of the screen, planning merely to place ¼-inch square wire mesh on the upper deck, while reserving the lower deck in case some change in the specifications might necessitate its use, or possibly to place a finer screen over all or part of the lower deck to secure a more desirable mixture of sand sizes.

Two rubber-belt conveyors, each 18 inches wide and 4-ply, one 28 feet long for removing tailings and the other 40 feet long for removing sand, were placed so their frames met beneath the angle-iron screen-and-hopper supporting frame. The outer ends of the conveyor frames were suspended at 15-degree angles by suspension cables from the four upper corners of the main angle-iron frame. The Anderson Engineering Company made the conveyor frames, as well as the head and tail pulleys, and both conveyor belts ran on Chain Belt Rex idlers. The conveyor belts ran at 225 feet per minute and both were driven through their tail pulleys.

When first built, the motive power for the feeder, vibrating screen and conveyors was supplied by a Model A Ford gasoline engine, mounted on

By SPENCER JONES

skids, operating at 1,200 r.p.m., and connected to the mechanism with V-belts and chains and sprockets. Later the Ford motor was replaced by a 15-horsepower General Electric motor, using 220-volt, 3-phase, 60-cycle current and rotating at 960 r.p.m. The electric motor also transmits its power through V-belts, chains and sprockets. The Ford engine, however, is kept near and in operating condition in case of an emergency.

A Model 40 Waukesha gasoline powered Lorain crane, with a 40-foot boom and a ¾-cubic yard Williams clam-shell bucket, feeds material from a 40-foot face into the 4-cubic yard hopper at the rate of about 80 tons per hour for 11 hours per day. The Lorain crane also has the job of loading out the sand from the stock pile beneath the sand conveyor into trucks. This truck loading, itself, amounts to about 60 tons per hour. In its idle moments, of which there are few, the Lorain crane casts to one side the accumulation of tailings that piles up beneath the tailings belt. As each

type of handling — to hopper, to trucks or to tailings casting—requires 10 to 20 feet of travel to a new position, this crane is kept constantly on the move.

The deposit having been stripped to a depth of 6 feet below the normal earth surface, mostly by means of bulldozers, the resulting plaster sand was of exactly the fineness and cleanliness desired. Recently the John McCourt & John P. Condon Corporation, which had a contract to furnish and apply hot-mix asphaltic concrete for the runways and other portions of a government airport, examined what the new dry sand-screening apparatus was making and contracted for its entire output.

A few changes were required in the dry product, the most important of which was the inclusion of about 8 per cent. of minus- 7/8-inch stone. The new product was to be mixed with "pea" stone (minus- 1/2-inch plus-1/4-inch) in the hot-mix plant. Having the double-deck vibrating screen, instead of a single deck, made it possible for Mr. Foley to alter the product of the sand-screening apparatus to meet the new specifications.

Close-up view of the sand-screening apparatus.

At present the upper 4 feet of the top deck of the screen is using 7/8-inch hexagonally perforated metal, with the lower half of the top deck left open. Occasionally this is removed and 5/8-inch square wire mesh is substituted. The lower 4 feet of the bottom deck is filled with either 7/8-inch perforated metal or 5/8-inch square wire mesh, with the upper portion of the bottom deck left open.

The material rejected by the 7/8-inch perforated metal or 5/8-inch square wire mesh of the lower portion of the bottom deck falls on the tailings conveyor and is carried to the tailings pile. The material passing through the screens of the top and bottom decks falls on the sand conveyor and is carried to fall on the sand stock pile. Production of 60 tons of sand plus 8 per cent. of 7/8-inch stone per hour is maintained 11 hours per day, exclusive of the weight of the tailings rejected. There is no stopping for lunch, as lunch hours are staggered. A fleet of trucks hauls the material from the dry-screening apparatus in the pit to the hot-mix plant, about 3,500 feet away, while another and smaller fleet hauls "pea" stone from the Highland Sand & Gravel Company's stock piles to the hot-mix plant, a distance of about 2,000 feet.

Alfred N. Foley, general superintendent of the Burlington pit.

The main plant at the company's Burlington pit is the kind that makes its executives point with pride to its production costs. This operation was started in 1927, although the company was founded in 1920. About 80 acres of land is owned or controlled at Burlington and the pit area now being worked is about 25 acres in extent.

Stripping is done with a tractor and bulldozer. Working at a 40- to 55-foot face, a Lorain 78 crane, Diesel powered and swinging a 1-cubic-yard Williams heavy-duty clam-shell bucket from its 55-foot boom, loads out 100 cubic yards per hour, 11 hours per day, dumping the bank-run material (which weighs 3,300 pounds per cubic yard) into an 8-cubic-yard steel hopper. This crane is also used to lift and shift the dry sand-screening apparatus to new positions, being equipped with heavy counterweights to offset the 10-ton weight of the hopper, feeder, screen, conveyors and steel frame.

The hopper, fed by the "78" crane, is emptied by a reciprocating-tray feeder, powered with a take-off from the tail pulley of a "pendulum" conveyor. This conveyor is a 30-inch, 5-ply rubber belt with Dodge head and tail pulleys and idlers and supported by an Anderson Engineering Company steel frame. The conveyor, which is 535 feet long, is driven by a 20-horsepower Fairbanks-Morse motor operating at 960 r.p.m. on 220-volt, 60-cycle, 3-phase current. V-belts and pinion and spur gears constitute the transmission system. The belt speed is about 200 f.p.m.

The "pendulum" conveyor feeds directly to a 30-inch, 5-ply rubber belt 388 feet long. This belt, powered by a 15-horsepower Fairbanks-Morse motor, travels at about 200 f.p.m. on Dodge idlers, with Dodge head and tail pulleys. It rests on a wood frame.

This 388-foot belt feeds a 5- by 12-foot bull screen, the upper half of which is of 1 5/8-inch circularly perforated metal, and the lower half of 1 1/8-inch circularly perforated metal.

Material rejected by the bull screen goes to a 14- by 28-inch Acme jaw crusher, driven by a 50-horsepower General Electric slipring mo-

A view of the main plant.

Crane loading bank-run material for main plant into 8-cubic-yard hopper. "Pendulum" conveyor extends from hopper towards lower right corner.

tor. From the jaw crusher the material falls on a 20-inch, 4-ply rubber belt 57 feet long, inclined at 18 degrees and driven at 250 f.p.m. by a 7½-horsepower Fairbanks-Morse motor, running at 1,200 r.p.m., through a V-belt drive.

This 20-inch belt carries the material to a No. 25 Kennedy-Van Saun crusher driven by a 40-horsepower synchronous motor. Another 20-inch belt, exactly like the preceding

Loader working at one of the stock piles.

one, takes the crusher product and feeds it again into the bull screen, thus completing a closed circuit.

Material passing through the 1⅝-inch and 1⅛-inch perforated plates of the bull screen falls on a 24-inch, 5-ply rubber belt 175 feet long, driven at 275 f.p.m. by a 15-horsepower Fairbanks - Morse motor through a Cleveland reducer. This belt, inclined at an angle of 15 degrees, carries the crushed material and the sand to a surge box.

Here the material is sprayed with water pumped from a pond by two Fairbanks-Morse centrifugal pumps —one of 600-g.p.m. and the other of 400-g.p.m. capacity and both driven at 1,800 r.p.m. by 25 horsepower Fairbanks-Morse motors.

The surge box feeds the wet material to a 4- by 10-foot Seco double-deck vibrating screen, driven by a 7½ - horsepower Fairbanks - Morse motor. On the upper deck of the double-deck vibrating screen is 1-inch hexagonally perforated metal; on the lower deck is ⅝-inch perforated metal.

Material rejected by the upper deck goes into the 1-inch stone bin. Material rejected by the lower deck goes into the ¾-inch stone bin. Minus-⅝-inch material falls on another double-deck vibrating screen exactly like the preceding one except that the upper deck is covered with ⅜-inch square wire mesh, while the high end of the lower deck has ⅛-inch square wire mesh for a length of 3 feet and 5/32- by 1-inch slotted wire mesh for the remaining 7 feet toward the low end.

Material rejected by the upper-deck screen goes into the ¾-inch stone bin. Material rejected by the lower deck goes into the "pea" stone bin. Material passing through the ⅛-inch square wire mesh of the lower deck falls into an Underwood single-screw sand-washer. Material passing through the slotted mesh of the lower deck falls into an Underwood twin-screw sand-washer.

The overflow from the two sand-washers goes to an 8-foot Kennedy-Van Saun sand-classifier and thence to a fine-sand stock pile. Material passing through the single-screw sand-washer goes into the plaster-sand bin, while that passing through the twin-screw sand-washer goes into the concrete-sand bin.

At each end of the housed-in loading passage beneath the sand and stone bins is a counterweighted wood framework, covered with tarpaulin and capable of being slid up and down in guides. Kept raised during the summer months, these end gates are lowered during the winter, being opened only to allow the passage of trucks. Three salamanders, burning in the passage-way, keep the temperature well above the freezing point even in the coldest weather and allow a free flow of materials out of the bins.

Until comparatively recently the Burlington pit generated its own electric power with a Fairbanks-Morse semi-Diesel engine and a Fairbanks-Morse generator. Now all the electric power is purchased, but the company's own power-plant is retained ready for use.

Eight men are employed at the Burlington plant and pit, including the two men on the dry sand-screening apparatus. The annual production is in the neighborhood of 250,000 tons.

Considerable material is stock-piled, but heavy demands have reduced the stock piles to ghosts of their former selves. Rehandling from the bins to the stock piles is done with a 40-ton steel-guyed derrick. Loading from the stock piles to trucks is done with 2 Barber-Greene loaders.

There is a well-equipped machine shop which is also provided with a portable Lincoln welding outfit and a Tolman oxy-acetylene welding outfit.

Two of the company's customers have plants at the pit: The Whittemore Company, which operates a gravity ready-mixed-concrete plant, and the John McCourt & John P. Condon Corporation, which operates a hot-mix asphaltic-concrete plant.

Bureau Survey Reveals Markets for Kyanite

To encourage domestic production of raw materials suitable for use in furnace parts and linings, the Bureau of Mines has published an over-all survey on marketing kyanite and allied minerals that can withstand the high temperatures in modern metallurgical processes and will not react with the substance being melted.

With shipping space at a premium, every ton that can be produced domestically will allow the importation of a ton of some other vital material that can not be produced in the United States.

A copy of the report may be obtained by writing to the Bureau of Mines, Department of the Interior, Washington, D. C., for Information Circular 7234, *Marketing Kyanite and Allied Minerals.*

Ample War Reserves Will Insure Both War-Time Profits, Post-War Survival

BECAUSE there has been much discussion anent higher costs and other losses arising out of the war and carrying over into the post-war period, mineral producers, like other business men, are considering the desirability of war reserves. Queries on this subject indicate that many producers are confused on this important element of administrative operation, yet, a majority of these men supervise businesses where the accounting system includes reserves. In other words, they lack adequate knowledge of an essential costing factor, which, in normal times, caused substantial losses because the prices obtained were not enough to cover the peacetime reserves that prudent management should set aside for a rainy day. If such ineptitude was a hazard before this crisis, obviously it is dynamite to-day, when producers are being urged to establish war reserves, estimating as accurately as possible the additional hazards of operation for the duration and the period of adjustment that will set in afterward with its inevitable problems that engulfed and submerged so many during the first World War.

The statement of one producer typifies the fog in which many are wandering. Said he, "We have $151,375 in reserves set aside. When you consider that we've been in business only 8 years, that nest-egg certainly deserves a 'crow-over'. Besides, our net worth is $206,574, which shows that we haven't crippled our surplus by our policy of building up reserves ample to meet all contingencies." This man was following a faulty line of reasoning common to many others in this industry. He confused funds with reserves. There is a big difference, and at a time like this, when reserves are taking increasing importance in the maintenance of reasonable profits now and during the post-war period, producers should make sure that they take the right view of this problem.

A fund always represents cash or equally-liquid assets. Reserves are always credit balances on the books; fund accounts are always debit balances. Reserves for depreciation, bad debts and other contingencies are merely bookkeeping entries to reflect certain conditions on the financial statement; hence, substantial reserves should never lull a business man into a sense of false security because his business can fail even when the financial record reveals that he has put away a fortune on paper. More than one producer in our accounting life has fooled himself thus, only to wake up too late. Came time when his trucks and bulldozers needed replacement and he

By ARTHUR ROBERTS

had hoped to realize this objective *via* the reserves listed on his balance sheet, but the cupboard was bare when he went there because his reserves were only paper figures, even though he had built them up with annual charges against profits.

Substantial reserves do not necessarily indicate financial strength, as many seem to think. A producing concern with substantial reserves may be weak otherwise. The ratio of current assets to current liabilities may be bad; too much money may be invested in fixed assets, which may beget heavy expenses, too heavy for the business so that the working capital may be dragged down below par; supervision in general may be weak. Many things can be wrong with a business, even though reserves are substantial on paper. A full tank of gasoline won't put a dump-truck in first-class mechanical shape. A business is like a truck in that it has many different operating elements which must synchronize efficiently. Depending too much upon one phase of management, such as the building up of substantial reserves on paper and disregarding other phases of managerial routine, is a "pathetic fallacy" often encountered in business.

Reserves are classified as: (1) valuation or appraisal reserves, (2) liability reserves, (3) surplus or net-worth reserves.

Valuation Reserves—Valuation or appraisal reserves concern depreciation, depletion or obsolescence of an asset, also bad-debt allowances, amortization of leasehold rights, etc. This type of reserve is set up to maintain conservative asset values. Each year a certain sum is set aside to effect the inevitable reduction in value that takes place because of wear, tear, age, obsolescence, depletion and sometimes material losses caused by errors in processing, theft, spoilage and shrinkage.

Valuation reserves should be deducted from the particular assets to which they apply on the balance sheet so that the analyst can get a quick picture of the actual total write-downs to the date of review and the net value of each asset. These reserves are built up through annual charges to profit and should be checked carefully to-day to make sure they are adequate. With the speed-up of war effort mechanical equipment wears out faster, hence depreciation charges should be increased, likewise, credits to reserve accounts. If insufficient to take care of actual wear and tear during this crisis, profits will be inflated and you will pay an excessive income tax. A check-over of the depreciation accounts of 12 mining concerns disclosed that all but one had *not* increased the credits to depreciation reserve accounts and that one recorded an increase of only 5 per cent., inadequate when one considers the increased utilization of their equipment on war work. Obviously, all these concerns are certain to have post-war "headaches", if they don't need the aspirin before the duration has ended. Moreover, inasmuch as inadequate charge-offs for reserves affect your costing, your estimates and prices will be lower than they should be to maintain a reasonable profit, hence, the incorrect handling of valuation reserves has double-barrelled repercussions—by omitting them, all or in part, you increase profits on paper and pay higher income taxes, which will be plenty high from now on, so try to effect savings wherever possible, or you short-change yourself on prices by not including them in costs.

Liability Reserves—Liability reserves are concerned more with impendent expenses than the writing down of assets to show conservative values. They are writen into the accounts when a liability exists and the amount at the time is not shown. Income taxes, social-security taxes, property taxes, state and federal taxes, a possible loss in a suit over an accident with a machine which may bring an unfavorable decision,

a loss on a substantial loan or account, are liabilities for which reserves are opened. Liability reserves make provisions in advance for a sizable outlay soon to come and tend to equalize the burden over the months in the year instead of one month or a few years.

For example, taxes are definite expenses but not known until some time in the future or after the first of the year, sometimes 6 months after. Nevertheless, each month should carry a fair share of the tax burden; hence, a reserve for taxes may be set up at the beginning of the year, the estimate based upon the previous year's taxes and 1/12 of the amount charged to expense and credited to "Reserve for taxes" each month. When the exact charges become known, this liability reserve is adjusted to agree with the exact amount of the tax and transferred to "Accrued taxes", because it is then an accrued liability, no longer a reserve for taxes. In reviewing the accounts of many mining concerns, we find that only about 20 per cent. provide reserves for taxes and, although this omission may have caused no financial concern in years gone by, it should be obvious that to-day, with tax a major expense, the absence of a reserve for taxes may create a serious monetary deficiency at the end of the year or when the tax is due. The liability reserve is usually short-lived compared to the valuation reserve. In most cases, it is closed out within the year or at the end of the year, then opened up again the next year. Liability reserves should appear on the liability side of the balance sheet as liabilities.

Surplus Reserves—Surplus reserves are the tools of "big" business. They cover many purposes — the retirement of bond issues; hedging against a decrease in the market value of inventories (incidentally, this is a reserve that many are considering to cushion post-war deflation of inventories); reserve for expansion of business property or an extensive advertising campaign definitely decided upon to keep the name of a company's products or service in mind throughout the war even though operations are at "peak" capacity. A surplus reserve is set up to prevent payment of the entire surplus in dividends, accomplished by "earmarking" the needed portion for definite objectives. The surplus reserve is part of the net worth and shown in this section of the balance sheet. Valuation reserves concern assets usually, liability reserves ordinarily concern liabilities, contingencies or expenses, and surplus reserves make provisions for payments out of capital.

A war reserve may belong to either of these classifications—valuation, liability or surplus—but uncertainty as to the duration makes it difficult to fix such losses, even approximately in many cases, yet some attempt, say its sponsors, should be made to set up a reserve figure, which may be adjusted when costs and losses are later determined. Credits to a war reserve should be charged against income, thus reducing the net for the current period. If such losses are carried through the war period without being recorded, they will eventually come up for handling in the post-war period and must then be charged off in a lump sum or pro-rated during the post-war period when business at that time will, more than likely, have "headaches" enough without being burdened with losses chargeable to this cycle. The situation simulates that of the producer who does not write off any depreciation on his machines, then suddenly finds that he needs new machinery and writes off the old in a lump sum against current profits or surplus. Obviously, such action distorts the operating figures for the period burdened unfairly. One case we remember where a producer wrote off more on scrapped equipment than he had made in the previous four years. In other words, he had been losing money for four years but didn't know it because his reserves were inadequate and because his prices were too low.

War Reserves Necessary — The major reasons for the establishment of war reserves are:

1. To cover inventory losses experienced during the post-war period, should prices decrease drastically.
2. For amortization of plant expansion constructed to take care of increased war business.
3. To accelerate depreciation of machinery as a result of all-out production and its operation by inexperienced workers.
4. To accelerate obsolescence because of improved units brought out as a result of more intensive research during this war; hence, existing units purchased before get obsolete sooner than expected when reserves were set up originally.
5. To replace damage done by armed forces or seizure by the enemy.
6. For repairs and maintenance deferred because of all-out production. Such work will, obviously, be more costly later than if done immediately.
7. To reimburse the business for forced sales of equipment bought for the duration that may not be used after.
8. For separation allowances or bonuses to employees who are discharged at the termination of the war.
9. To defray the expense of demobilizing a plant for peace-time operation.
10. To offset the decline in plant value due to the reduction in capacity resulting from the decline in sales after the war.

It may not be necessary to open war reserves for all these contingencies, nevertheless, the business man should consider them. Business may boom after the war but it pays to be on the safe side. A dip has always followed the "peak" at some time. As yet the Treasury Department will not permit the deduction of war reserves for income-tax purposes, but business groups are urging the government to recognize provisions of this kind as deductions in the determination of taxable income because such a policy will tend to make taxable income more nearly reflect real income, inasmuch as these reserves are intended to give recognition to costs and losses related to the war period that are real, not imaginary, although in many cases they can not be definitely measured at this time.

In the final analysis remember that your reserves are paper figures, so do not bank too heavily on them until they are analyzed for adequacy. An analysis of many balance sheets made during the past decade in this industry shows that 25 per cent. were deficient financially despite substantial reserves. This does not mean that those concerns were insolvent but their financial condition was below par in one way or another and could be strengthened. Reserves are useful gadgets when all parts of the business machine are in good working order, otherwise, they are worth little more than the paper they are written on. They do not represent cash set aside for replacement of working assets, nor do they signify that the credits were ever deposited in the bank or invested in securities. If you want to have the actual cash on hand for replacement of equipment after the war, you must open a "Fund for Replacement" account, depositing coin of the realm or invest in war bonds.

War-time costs, such as depreciation

(*Continued on page* 64)

The 3½-cubic yard walking dragline loading the 60-cubic yard truck-loading hopper. The hopper gates are controlled by air supplied by a compressor on the dragline.

THREE-PHASE EFFICIENCY IN THIS PLANT

ONE million tons a year is a lot of gravel, and to handle it requires an efficient and dependable system in the three phases of operation: borrow pit, transportation to plant, and plant proper.

In 1943, when buckets for draglines, pistons for truck engines, and belting for conveyors take a high priority rating and even then are months in arriving, the efficiency of each phase is doubly important. Add to the difficulty of getting replacement parts the demands of war construction for large quantities which can be produced only by continuous operation, and you have a situation that is pretty acute.

A shining example of an operation where efficiency is carried to borrow area, in-between materials handling and actual plant operation is the set-up owned and operated by The Basalt Rock Company at Healdsburg, California. The plant has been there for two decades[1], but the progressive management has continually redesigned and modernized it. The result is a smooth production of a million cubic yards a year.

The principle of continuous operation is first put into effect in the first part of the process — recovering the river gravel. The plant is located on the Russian River, where almost unlimited deposits of uncemented river gravel are available within economical hauling distance. Operations are proceeding at present between one and two miles downstream, where the company has cofferdammed the river flow and diverted it into a new channel, which allows it to work the former stream bed.

The dragline method of operation is employed because it is necessary to dig in a pond; the water level is naturally close to the surface. So to reach efficient digging depth a 3½-cubic yard Bucyrus-Monighan walking dragline with an 80-foot boom has been put on the job, excavating between 35 and 40 feet below the surface. The production rate averages between 2,200 and 2,300 cubic yards of gravel per 8-hour shift, for the deposit is of pretty uniform and easy-to-handle material, with the occasional exception of sand and heavy gravel pockets.

A punishing time schedule is maintained at present—three shifts, with only two hours shutdown out of 24 for maintenance. The equipment has stood up remarkably well. In the 2½ years that the shovel has been on the job, it has had only a couple of minor repairs, and the Page and Bucyrus-Red Arch buckets have given good service. Time out for reeving in new cable has been reduced through the use of preformed wire rope, which is easier to handle and more flexible than the older types. The operators have found, also, that broken wires do not "porcupine" and present a hazard while they are being handled as with the non-preformed types.

The service life of this type of rope probably is the biggest factor in the record of continuous operation of the dragline. And if the excavator should stop for any considerable period, the plant would stop, too, for the raw-material surge capacity is not large. Basalt Rock has found that preformed cable will give a service life of from 230 to 240 hours on the drag ropes and from 600 to 800 hours on the hoist lines. This is exceptional service, particularly for the haul back lines, which must pull over highly abrasive material and be subject to hazards such as are presented by sharp rocks. It is made possible by the fact that preformed cable, being more flexible, can be used in grades having larger outside wires and hence greater resistance to abrasion.

The excavated material is dumped into a 60-cubic yard receiving hopper for truck loading. Up to a few

[1](Described in PIT & QUARRY, July 31, 1929, pages 35-45 and 55.—ED.)

months ago the practice was to dump directly into the Euclid buggies. That meant that the machines had to come up to the excavator, take on 3½ cubic yards, then waste valuable minutes standing idle while the machine made each digging pass. So the hopper was constructed. Its sliding discharge gates are operated by air from a compressor mounted on the shovel, and as the Euclids are of 13- and 15-cubic yard capacity, it has sufficient surge capacity to keep them rolling. Superintendent Jim Kennedy says that they can be loaded in an average time of 20 seconds now, while it took 3 minutes before.

The company has constructed and maintains its own road from the plant to the pit, and five Euclids ordinarily keep the excavator busy. They are high-speed units, and over the level route attain and hold speeds up to 35 miles per hour fully loaded. At the plant they bottom-dump into a track hopper which feeds by gravity to a conveyor belt leading to the plant.

The plant is versatile, producing natural river gravel, crushed gravel and sand. A good business is also done in black top material, for which the company has installed an asphalt plant.

The arrangement of the plant is functional. The raw-materials belt leads to the crushing equipment, beyond which, and in the same direction, lie the crushed gravel and sand screening and stock-pile areas.

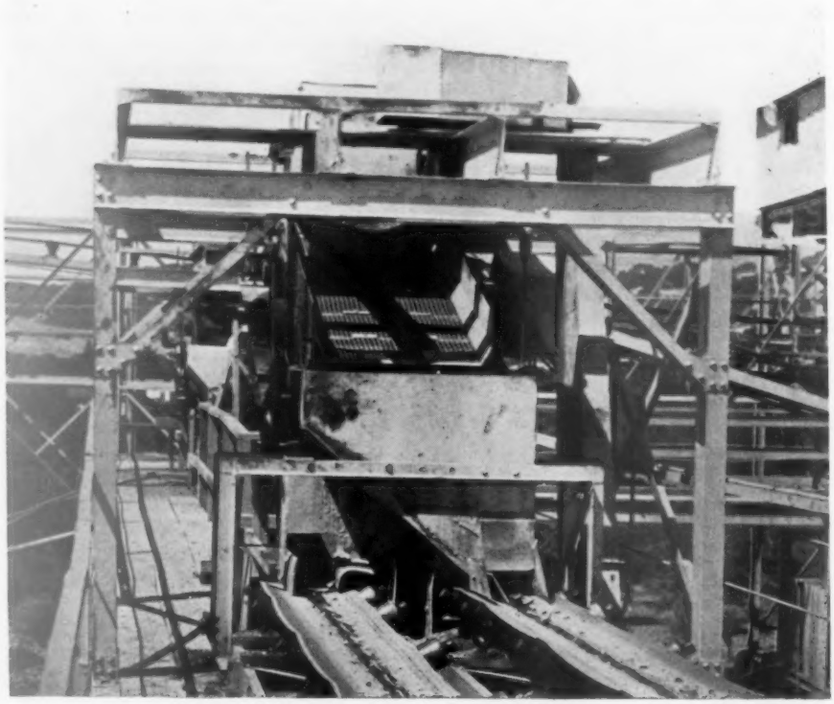
Conveyors and screening trestle over the stock piles.

At the end of this system, and at right angles to it, lie the natural-gravel screening units and stock-pile areas. All the screens are located on steel trestles over the stock-pile areas, so that in most cases the gravel is dropped directly to its proper storage area.

The raw-material belt is on 400-foot centers and has a 24-inch width. It discharges on 4- by 10-foot screens at the top of the crusher house. Plus-3-inch material is scaled off and is processed for crushed gravel, while material passing through goes into the river-gravel handling system. The bottom deck passes ¼-inch material, which is used for sand.

Larger than 3-inch gravel goes into a 150-ton bin, and thence to a Traylor 10-inch gyratory crusher which handles the larger sizes. A roll crusher makes the finer grades. The products of both crushers go to a 24-inch, 250-foot belt and are received on a 3- by 8-foot screen with 5-16- and ⅛-inch cloth on its two decks. Material passing the lower deck is piped to its stock pile, while the rejects are dropped to the stock pile immediately below. The rejects of the upper deck go by a 20-inch, 30-foot belt to another 3- by 8-foot screen with ¾- and ½-inch screen cloth. The minus-½-inch material falls to a stock pile directly, while the rejects from the bottom deck are taken by a short belt to a stock pile. The rejects of the upper deck are taken by a belt to a 3- by 8-foot screen with a 1½-inch mesh cloth which passes gravel directly to a stock pile. The rejects are passed to the belt leading to the natural-river-gravel circuit.

The crushed-gravel system is entirely separated from the river-gravel system. The crushed-gravel production is not nearly as great as that of natural gravel, due to the nature of the deposit, so the system that handles it can be shut down for all but 2 or 3 hours a day. Raw material for the river-gravel system, ranging up to 3 inches in size, is stored in a 300-ton bin below the first screening unit. It is taken on a 24-inch, 300-foot belt to the trestle running at right angles, where it falls on a 4-by 10-foot screen unit



Typical screening unit showing belt-conveyor arrangement.

with 1½ and ⅜-inch screen cloth. Gravel passing the bottom deck goes by a 24-inch, 40-foot belt to a stock pile, and the rejects proceed by a 24-inch, 30-foot conveyor to a 3- by 8-foot 1-inch screen. Rejected material falls on a stock pile, and the passing gravel goes by a 24-inch, 30-foot belt to a stock pile. Gravel from the 1¼-inch screen is handled on a 24-inch, 40-foot conveyor to a 3- by 8-foot screen with 2-inch mesh cloth. The rejects pass directly to the stock pile below, and material which passes goes on another 24-inch, 40-foot belt to a 3- by 8-foot 1½-inch screen. The rejects drop to their stock pile, and a 24-inch, 30-foot belt takes the material which passes to a stock pile.

Bodinson and Link-Belt sand classifiers process the sand, discharging it on a 24-inch, 100-foot belt which is installed on a trestle over the sand stock pile. Fine plaster sand is produced on a 3- by 8-foot screen with No. 8 mesh cloth.

Niagara screens are used in the system, while the belting is mostly New York, American and Pioneer. Link-Belt anti-friction idlers are employed, while the driving is done with Fairbanks-Morse and G-E motors and Pacific gear reducers.

The water comes from bored wells which have proved to be more practical because the river flow is quite variable. Here an 8-inch Fairbanks-Morse centrifugal pump supplies

A 15-cubic yard load of gravel speeds to the plant at 30 miles per hour.

water for the screening plant, while a 3-inch unit of the same make handles the supply for the loading equipment and the asphalt plant. Waste water demands special handling, for there are many resorts downstream on the Russian River and muddy water can not be fed into the stream. So waste is diverted into a series of settling tanks, each separated from the next by a gravel embankment through which the water seeps by gavity.

Concrete-lined tunnels are installed underneath the two stock-pile areas, and the material is reclaimed on a 24-inch belts. The belt serving the sand and crushed-gravel area is 400 feet long, and it discharges in the 550-foot belt, running at right angles, which also serves the river-gravel system. The latter, on emerging from the tunnel, inclines upward and terminates at an elevated station. Here a 4- by 10-foot screen is installed for any final screening which may be necessary. From this point the material can go either to a short belt leading to a point over the railroad tracks, or to another belt which carries over reinforced-concrete bunkers for batching and truck-loading.

There are ten of these bunkers, each with a capacity of 60 tons. A 24-inch, 30-foot shuttle belt is installed over their center-line so the gravel can be loaded into the desired bunker. Two gates are built in the bottom of each bunker. One discharges on a 24-inch, 60-foot belt which goes to the Standard Steel asphalt plant, while the other is provided to dump into a movable, 5,000-pound weigh hopper with Fairbanks scales for batching and truck-loading. The gates are sliding, actuated by rack and gear.

The man responsible for plant operation is Superintendent Jim Kennedy. The Basalt Rock Company has headquarters in Napa, California. Albert G. Streblow is its president.

The company also manufactures concrete blocks in a plant described in PIT & QUARRY, February 1941, pages 81-84 and 86.

This water-color painting, executed by J. Jay McVicker, instructor in the school of architecture and applied art at Oklahoma A. & M. College, Stillwater, was awarded first prize in the forty-seventh annual show of the Washington Water Color Club recently at the nation's capital. It now hangs in the Corcoran Gallery of Art in Washington. Titled "Rock Crusher," the artist used as his subject the crushed-stone plant of the Roy T. Hoke Lumber Company at Stillwater, Oklahoma.

Pointers on Maintenance of Vibrating Screens

A few pointers on the maintenance of vibrating screens have been listed by the Link-Belt Company in the interest of prolonging their life and reducing the danger of interruption of production because of breakdown:

1. Lubricate the bearings and maintain shaft speeds as recommended by the screen manufacturer. If record of recommendation has been lost, send for a copy and tack it up or keep handy.
2. Maintain proper tension on screen cloths, and keep an eye on condition of cloth from time to time. The cloth is the hardest used part of the screen.
3. Life of screen cloth can be prolonged by feeding the material to screen uniformly over the entire width of screen cloth; and if material is abrasive, by doing so as gently as possible.
4. Check clearances occasionally to assure free movement of screen box. In other words, guard against interference between screen box and chutes or hoppers.
5. Keep screen frame well painted.
6. Check alignment of drive.
7. Keep the screen clean when not in operation.

Victory Sand Plant Conducts Its Own Victory Program of Salvage, Repair

HERE at Victory Sand we have streamlined our organization to keep pace with America at war. Ninety-five per cent. of the present output of our plant is being delivered to firms holding government contracts.

"The Most to Win the War the Quickest" has been our slogan. To that end we have delivered 45,300 cubic yards of sand, 29,000 cubic yards of gravel, 40,000 cubic yards

Superintendent Roe points to worn spots on wire rope on the dredge-hoist drum. Reversing the rope end for end lengthened its service greatly.

of ready-mixed concrete, and 11,000 cubic yards of rock.

With this overload production it has been necessary to add to the capacity of our plant. We have accomplished this expansion with few requisitions for new materials or equipment. Eighty-five per cent. of the parts, tools, equipment and machines have been salvaged from retired material or made in our own shop from scrap.

Our Victory Program goes farther than plant expansion; we have adopted many material-saving policies which are giving us longer life for our equipment, such as more frequent inspections and lubrications for all wire ropes; checking sheaves and drums regularly; switching ends when wear begins to show; regular inspection and servicing of all machines and power units. In fact, the program covers every phase of our plant operation.

We feel that, regardless of priority rating, every time we are able to convert a retired piece of machinery or tool into operating equipment we are helping with the war effort to just as great an extent as we are helping when we operate 24 hours in order to double output.

To accomplish this "streamlining" we have enlarged our machine shop and storage room. The larger department is in charge of Paul Martin, an experienced machine-shop and salvage man. It is Martin's duty to see that every foot of wire rope, every bolt, tool, or piece of machinery which can be salvaged is conditioned, brought back into the stockroom, and reported as reclaimed on the stock inventory. No item is too small or too large to be salvaged and reported.

A record showing materials reclaimed is furnished each day by the machine shop and stockroom. All materials — tools, wire rope, machines, or what—when reclaimed, are added to the perpetual inventory.

All of us here at Victory Sand have made it our business to study preventive maintenance, and measures for bringing retired equipment back into operation. This goes for all our employees, including the management.

We read every issue of PIT AND QUARRY—articles, editorials, operation hints, and advertisements. Information applicable to special departments is marked and given to foreman in charge of that department for study and reference. As a result of this policy, and by applying what we have learned regarding others and their experiences with like problems, we have been able to

By J. L. ROE
Superintendent, Victory Sand & Stone Company, Topeka.

show substantial savings in both time and money.

Take for example, wire rope. We use about 8,000 feet of different sizes and types in our plant. Prior to 1937 all the cable at Victory Sand was ordinary wire rope. We had been having a good deal of trouble with wear where high-speed operation was required, and especially with small sheaves and drums. One rope particularly, a 300-foot cable which operated our dredge boat, had to be changed monthly.

In 1937 we built a suspended flume. Before doing this work we studied all the information we could find on similar jobs. We found numerous cases where preformed rope was giving better service and satisfaction. We decided to try preformed for our dredge cable. But first we made several tests. In each case the preformed outlasted the ordinary rope two to one. The longer life was not all; we found there was a difference in operation. The preformed worked easier and faster and gave us no trouble on the drum.

We found that the preformed rope gave us better service in its

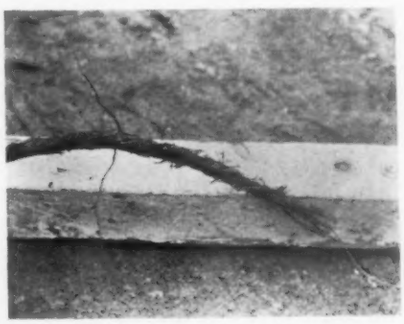
The dredge showing small sheaves which put heavy strain on the wire rope and cause most of the wear.

CONSERVE STEEL BY THOROUGH MACHINERY MAINTENANCE
TODAY'S DEMAND IS:
MAKE EVERY PIECE OF EQUIPMENT LAST LONGER
HAZARD LAY-SET Preformed WIRE ROPE
July, 1942
19

The advertisement in the July, 1942 issue of "Pit and Quarry" with suggestion for longer rope life marked. This gave Mr. Roe the idea outlined in this article.

second life, after retirement from the dredge. We had been using the ordinary rope for railings and for guards. With the preformed, used for the same purpose, there were fewer broken wires and consequently fewer hazards from hand injuries. We also found less loss of rope from cutting.

Since 1937, as replacements became necessary, we have been changing to preformed wire rope. With a small initial cost increase, we have been able to double the life of our wire ropes, and at the same time obtain better operation and a lessening of the accident hazard.



One end of a section of ordinary rope which was pulled apart.

In the summer of 1942 one of our machine operators located a suggestion for still longer life for our dredge cable. It was in the July issue of PIT AND QUARRY—a single sentence in a wire-rope advertisement which said: "Or perhaps you can turn your rope end for end and have virtually a new rope to use." That was the sentence. We made the suggested switch.

The main point of wear on our 300-foot digger cable showed at the dredge, where the rope is under constant strain and must operate over small sheaves. We switched ends and placed the worn end of the cable on the drum in the dredge boat house.

Result: We doubled the life of our rope. We found that after changing ends the rope gave us another equal period of service before retirement was necessary. And the retired rope, after the double duty, was just as satisfactory for railings and flume supports.

But our Victory Program does not deal with wire rope alone. It includes every phase of our operation. Take bolts, for example. We have

Wedge and, at right, section of old car spring from which it was made.

found that in our machine shop we can remove the rust from old bolts, polish them, and if necessary, reduce their lengths in order to rethread them. Thus, we have been able to

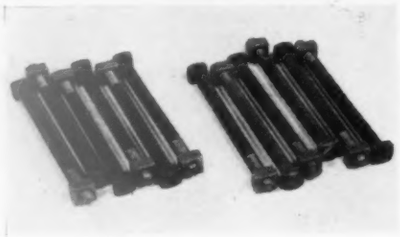
Pick-head repointings. Old head with dovetail and new point at left. Spring section used for making new points in center. Finished pick head at right.

keep up our stock almost entirely from material reclaimed by repair work, or actually made from material found in the scrap pile. In some cases we have gone to the local junk dealer for discarded metal which we have worked into usable material.

Recently we found we were unable to purchase a particular type of pick we needed in some of our

work. The picks we formerly used were made from Black Diamond tool steel. In our own shop Mr. Martin found that he could make just as good a pick by forge welding, using a section of discarded car spring.

Several badly rusted, discarded, railroad car springs were located. These springs were sawed down through the center, giving sections of spring steel as shown in the illustration. These sections were cleaned of rust, straightened, and drawn square with the trip hammer. The



Left, bolts made from new stock. Right, reclaimed bolts after sawing and rethreading.

points from the old pick heads were cut off at the eye, and the new points, made from car-spring sections, were replaced by a do tail forge weld.

By this same method we hav produced our own rock wedges and a great number of other tools,—all from discarded metal.

Suggestions for better preventive maintenance policies and for longer life for equipment are encouraged. All such suggestions are made up in report form and studied. If the suggestion is put into operation, some recognition is given for the idea and the employee is made to feel that through his own effort we at Victory Sand have been able to take a step forward in our program, exemplified by our slogan, "The most to win the war the quickest."

I believe the war-time experience of production at top speed and top capacity, without resorting to the new catalog for needed equipment and repair parts, is going to be a lesson for us in post-war operation.

In the case of our 300-foot dredge cable,—there was no sense in retiring that rope when it showed wear at the dredge. Yet we had been doing that.

Our stockroom and machine-shop record proves that the new method of saving and reclaiming is a profitable one. We are constantly learning short cuts and better methods for bringing retired equipment and machinery back into operation. There have been "headaches," to be sure — problems, plenty of them, where we felt there was no way out except to shut down or buy new ma-

Paul Martin, machine-shop and stock-room foreman, points to some of the reclaimed bolts which have been placed in stock.

terial. But they were all worked out, and with the licking of each problem came a new method of operation, a better idea of maintenance or a suggestion for longer life for equipment.

With our whole organization working together to deliver the most we can in order to see that the war is won the quickest, and using every saving method we know to prevent new purchases, at a time when our new purchases might mean that vital material was denied our fighting men, we have been able to accomplish results undreamed-of one, two, or three years ago.

It is my belief that we have just begun to scratch the surface in "streamlining" our organization. By working together, by all of us studying accomplishments of others in our line of business as reported in our trade publications, and by taking advantage of suggestions from manufacturers—suggestions resulting from technical research—we are going to be able to show greater and greater results.

We feel that our Victory Program has just begun.

War Reserves (from page 58)

tion, will be higher than similar expenses in peace-time for many concerns; hence, some attempt must be made to solve the problem intelligently, otherwise profits for the duration will be inflated, income-tax payments will be excessive and after the war it may be impossible to back-track and cushion heavy losses due to the scrapping of equipment and other post-war acts. Now is the time to do what you can to minimize post-war losses and one means to that end is the establishment of war reserves and the proper recording of regulation reserves that should be listed, even in normal times, in every business man's books.

EVERYBODY EVERY PAYDAY 10%
Save with
War Savings Bonds

Kent Diehl Developing Texas Gypsum Deposit

Kent Diehl, founder and former president of the Gulf Portland Cement Company, has spent the last nine months developing a gypsum deposit at Hockley, Texas, 31 miles northwest of Houston. It is on the Southern Pacific Railway and is said to be the only commercial deposit in this country close to tidewater. The plant is at present equipped to produce only crude crushed gypsum chiefly for cement-plant use and will have a capacity of 50,000 tons annually. The plant is expected to be in operation about June 1 as the Hockley Gypsum Company. It is on an 8,500-acre property leased from the Warren Ranch.

Several earlier efforts had been made to develop this deposit, one by the Howard Kinyon Dredging Company of Houston. Before going ahead with this project Mr. Diehl had extensive test holes drilled which indicated the existence of an exceptionally pure bed of gypsum from 105 to 132 feet thick and 122 feet below the surface. The deposit was studied and reported on favorably by Thorald Field, eminent mining geologist, now a consultant to the Metals Reserve Corporation, and the mining plant was developed by William F. Crago, consulting mining engineer. The room-and-pillar system of mining will be used. Axel F. Peterson was in charge of the development and is superintendent.

Closed-Shop Contracts Outlawed in Florida

After such action had been requested by the Lime Rock Association of Florida, the Associated Industries of Florida and a number of other organizations, Florida's legislature gave final approval on April 29 to a proposed state constitutional amendment which would outlaw labor's closed-shop contracts in the state.

If approved by the electorate in a referendum at the 1944 general election, Florida will become the first state to abolish the closed shop by constitutional amendment.

New Mexico Pumice Plant Built Up to Efficiency By Trial and Improvement

another ON THE SPOT report

ONE of the many little-known nonmetallic minerals which play a comparatively small but essential part in industry is pumice. For many years manufacturers had to depend on imports for high-grade pumice, a condition which led interests in this country to locate and develop deposits. Now pumice is being produced in a number of states including Kansas, Nebraska, Oklahoma, California and New Mexico. The sales of domestic pumice and pumicite have grown steadily and reached a peak of nearly 90,000 tons in 1939. Most of the output is used in the manufacture of cleansing and scouring compounds and hand soaps. Its use as an admixture and aggregate in concrete has in recent years been next in importance and is increasing. Its use in acoustical plaster also is growing and small amounts are used for various miscellaneous purposes.

One of the most important producers of high-grade pumice in this country is the Pumice Corporation of America, which operates a plant on U. S. Highway Number 66 in Grants, New Mexico, and owns a deposit near that town. The history of this deposit dates back to a time more than 10 years ago, when the Barnsdall Tripoli Corporation, a subsidiary of the Barnsdall Oil Company, found it while searching for a domestic source of pumice equal in quality to imported pumice. This deposit lies 6 miles north of Grants and 80 miles west of Albuquerque. It is only 15 miles from Mount Taylor, a 11,436-foot peak which dominates that part of the country, and to which geologists trace its origin.

View looking down on the washing and drying plants near the deposit with Mt. Taylor, a 11,436-foot peak, barely visible in the background.

The Barnsdall Tripoli Corporation spent three years making tests

By W. E. TRAUFFER

before setting up an experimental grinding and sizing plant at Seneca, Missouri. After two years of operation it was decided to build the plant at Grants, where it began operating on July 1, 1938. This is said to be the most modern plant of its kind in existence and is built entirely of steel. Because of the lack of precedent, the equipment and methods used were specially designed for this material and were more or less experimental. After the plant had been in operation for some time it was found advisable to revise the flow sheet and change part of the equipment. Some further changes were made after the plant and deposit were sold to the present owners in 1941. This plant has a capacity of about 5 tons per hour and most of its output goes to a large gypsum company for use in making acoustical plasters and to a large soap company for use in making laundry soap.

The incline and balanced car system which brings raw material from quarry to preliminary processing plant.

According to the best authority, the formation of this deposit began when Mount Taylor erupted and a cone of rhyolitic tuff was built up around it. After this eruption lava hardened in the neck of the volcano and in later eruptions of black basaltic lava evaded this plug and made its exit through small openings around the base of the mountain. The lava flowed over the volcano tuff in places and protected it from erosion. The present workings are in an outcrop which apparently was partially uncovered by an upheaval that broke away part of the lava covering.

According to the U. S. Geological

Some of the roll crushers ahead of the drier in the main plant.

survey, the deposit is nearly 300 feet thick in places and is in three escarpments. The top 20-foot layer consists of crisp volcanic cinders. Below this is 20 feet of white volcanic sand. The bottom layer, which is the one being worked, is a tuff composed of sand, dust, and pumice bombs ranging in size from dust to 2 feet in diameter. The actual pumice content is about 20 per cent.

When it was first opened, the deposit was worked by tunneling and cross-cutting with air drills and later with electric auger drills. The material is easy to drill but, because

The 1-cubic yard scraper loading machine loading a car in the quarry.

of its resilience, is difficult to shoot. The best results are obtained with a pellet form of black powder which is packed in shells. The broken pumice was loaded by hand into 22-cubic foot mine cars, of which six were used. These were pushed out of the mine and their contents were discharged through a wooden chute into a bin at the base of the hill. Trucks hauled the material to the washing plant which is ¼ mile distant and 300 feet below the mine elevation of 7,800 feet.

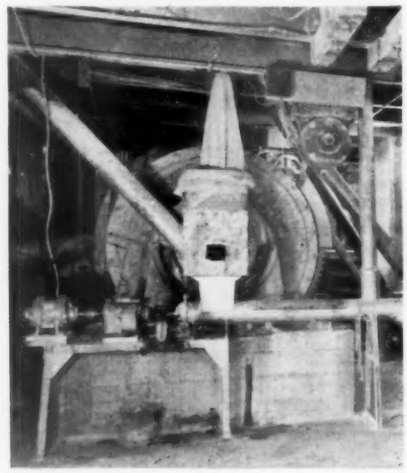
Later a wooden inclined trestle was built from the mine level to the washing plant and a counter-balanced skip-car system is used. The two 3½-cubic yard cars operate on a 3-rail track with a switch at the middle point where the cars pass each other. The system was controlled by a Morse Brothers lowering drum equipped with brakes but no motor. This system has a 150-foot drop in its 1100-foot length.

Mining proved to be unsatisfactory so open-quarrying methods were adopted and operations are

Some of the shaker screens used for sizing some of the coarser products.

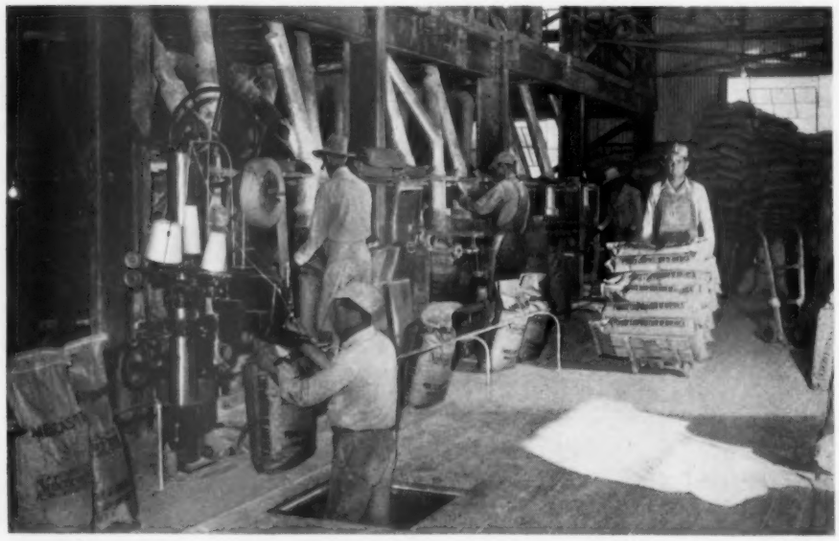
now confined to a part of the deposit which has a comparatively light overburden. At this location the overburden averages about 3 feet in thickness and enough of this has been removed for nearly ten years of operation. Several other similar locations can also be worked before it will again be necessary to resort to underground - mining methods. A Caterpillar 35 gasoline tractor equipped with a bulldozer does the stripping.

The quarry is being worked below the mine level and eventually it is expected that direct truck haulage to the washing plant will again be

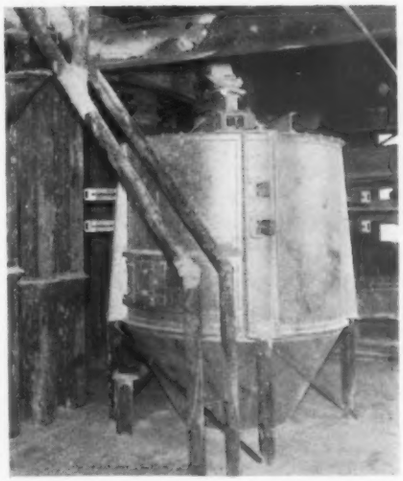


The 5- by 10-foot tube mill used for grinding the dried pumice.

used. The drilling is now done with Chicago Pneumatic electric auger drills. The shooting is done in benches. The holes are sprung with 40-per cent. dynamite and powder is then used. The material is loaded by a 1-cubic yard scraper, operated by a Sullivan electric hoist loader, into 2-cubic yard cars which are drawn up a short incline to a tipple at the mine level. Over this tipple is a 4½-inch grizzly through which the oversize material is sledged. The two tram cars are loaded under the tipple. The main hoist has been provided with a 10-horsepower elec-



A view of the bagging floor, showing the bag packers and conveyor which takes the bags to the sewing machine in the left foreground.



The 6-foot mechanical separator which makes minus-200-mesh products.

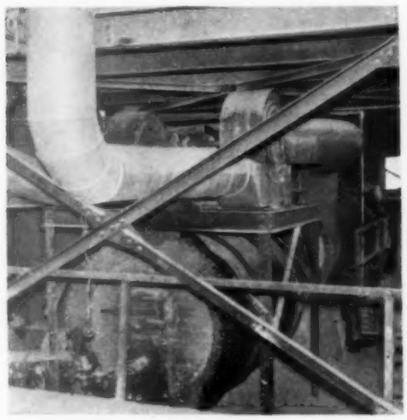
tric motor to speed up the operation of the balanced tramway.

The material is dumped from the cars over a 4-inch grizzly into a hopper from which it is discharged into a 24- by 36-inch Allis-Chalmers corrugated-roll crusher. The minus-1-inch crusher product is carried on a belt-conveyor to a 20-foot revolving scrubber equipped with water sprays and lifts. The $\frac{1}{16}$-inch openings in the discharge end of this screen allow the loose sand coating of the pumice to pass through to waste. The pumice goes to four zinc-type piston jigs which remove rock, cinders and sand. These are to be replaced with Ore Reclamation Company jigs. The product

A sample of pumice being tested in the plant laboratory.

floats off through a launder to the drying plant a few hundred feet distant.

There the washed pumice goes to a pan-type reciprocating dewaterer with a $\frac{1}{16}$-inch wire-cloth deck. It is then elevated into two 40-ton bins which are used alternately in such a way as to give 24-hour drainage. A pan-feeder withdraws the pumice from storage to a 5- by 30-foot oil-fired rotary drier which is equipped with a Ray burner and reduces the moisture content to about 10 per cent. The dried pumice goes over an Economy electric magnet which removes the iron before it is discharged into a 75-ton bin under which trucks are loaded. Because of the light weight of this material (30 pounds per cubic foot), a special 6-ton body is used on the Chevrolet truck, which hauls it 6 miles to the



The firing end of the 5- by 30-foot rotary drier in the main plant.

finishing plant at Grants, which is at an elevation of 6,540 feet above sea level. The water for the washing plant is provided at the rate of 200 gallons per minute from a 310-foot well.

At the finishing plant the material is discharged into a hopper from the truck on a ramp. A bucket-elevator feeds this material into a 50-ton bin. A pan-feeder is followed by an elevator to three Barnard & Leas 3-cut Le Page rolls. The crushed product is discharged into the Hardinge Ruggles-Coles 5- by 35-foot indirect-heat rotary drier, which is fired by oil through a Ray burner and a combustion chamber. A double fan draws dust from the drier into a cyclone collector.

The drier reduces the moisture content of the material to about 2 per cent. An elevator feeds the product of the drier to a 5- by 10-foot Allis-Chalmers tube-mill which was converted from a rod-mill. An elevator feeds its products to a 6-foot Raymond air-separator, with a single whizzer, followed by a 4-foot Raymond separator. The separators usually make 3F or minus-200-mesh material, but by using the dampers on the whizzer a 4F or minus-325-mesh product can be made.

The rejects, or oversize, from these separators goes to a pair of Unique Gyro-Sifter 2-deck gyrating shaker screens, which make Number 1430 acoustical grade material between 14- and 30-mesh and Number 3 or 30- to 45-mesh material. The oversize from these screens goes to a second similar pair. These make Number 1½—45- to 60-mesh, Number ½—60- to 100-mesh, Number ¾—100- to 150-mesh, and Number 2F—150- to 200-mesh products.

Six Gump bag-packers are used to pack these products into 4-ply paper bags on Fairbanks scales. The filled bags are carried on a belt-conveyor to a Union Special bag-sewing machine, and are then moved by hand trucks either into a new 1,500-ton capacity warehouse or into box cars for shipment. All shipments are made over the Santa Fe Railroad on whose main line the plant is located.

The Pumice Corporation maintains offices at Grants and its operations are in charge of C. T. Griswold, general manager. Other officers of the company are: Clarence E. Clark, president; Harold G. Robinson, secretary and treasurer; Carlton M. Higbie and N. Bradley Higbie.

Olivine Deposits May Be Magnesium Source

Several hundred million tons of olivine, a common mineral regarded as a possible source of magnesium metal are known to exist in the United States, according to a report just published by the Bureau of Mines. Averaging 45 to 49 per cent. magnesia, the principal reserves of olivine are in the eastern seaboard states of North Carolina and Georgia and in the Puget Sound region of the Pacific Coast.

The North Carolina and Georgia deposits are estimated at about 230,000,000 tons, but the most extensive and best quality olivine occurs in the Twin Sisters Mountain region about 90 miles north of Seattle, the report states. No figures have been published regarding the size of this deposit, although the Geological Survey, another agency of the Interior Department, estimates that the reserves run into "millions of tons." Another large deposit estimated at 50 million tons is on the southeast corner of Cypress Island, in Puget Sound some 80 miles northwest of Seattle.

Bureau of Mines metallurgists at Norris, Tennessee, are engaged in research to develop a low-cost process for extracting magnesium oxide from olivine.

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THE THOMAS LAUGHLIN *Company*
PORTLAND, MAINE

PERSONAL MENTION

THOMAS B. DOUGLAS, formerly superintendent of the Gulf Portland Cement Company's plant at Houston, has been made general superintendent of the parent concern, The Ideal Cement Company. Other Ideal changes include the advancement of CRIS DOBBINS, formerly sales manager, to assistant to the president and assistant general manager, and the appointment of GEORGE WILEY as acting chief engineer to succeed J. F. KAUFMAN, resigned.

S. G. THYRRE, vice president of F. L. Smidth & Company, New York, was recently elected vice-president of the National Portland Cement Company. Mr. Thyrre has been closely identified with the cement industry both in England and in this country for the past 20 years. In addition to his new responsibility he will retain his present connection with F. L. Smidth & Company.

JOHN A. RUHLING, who has been stationed in Appleton, Wisconsin, for the last nine years as field engineer for the Portland Cement Association, has been named assistant manager of the cement-products bureau of the association with offices in Chicago.

R. E. MINOGUE, assistant superintendent of the Manitowoc Portland Cement Company, Manitowoc, Wisconsin, has been promoted to the superintendency of the Medusa plant at Toledo, Ohio. Mr. Minogue had been a resident of Manitowoc since 1923 coming to the city, when the local cement plant was under construction, from Newago, Michigan.

HARRY COCKSHUTT of Brantford, Ontario, was elected chairman of the board of directors when the annual meeting of the Gypsum, Lime & Alabastine Company of Canada Ltd., was held recently at the firm's head office in Paris, Ontario. GEORGE A. DOBBIE of Galt was named president.

M. C. CROOK has been appointed superintendent of the National Gypsum Company's, Fort Dodge, Iowa, plant. Mr. Crook, who succeeds the late Herman A. Anderson, had been acting superintendent of the company's Medicine Lodge, Kansas, plant.

JOHN PRINCE, president of the Stewart Sand & Material Company, Kansas City, has been re-elected to his third term as head of the Kansas City Council of Social Agencies.

HARRY BENNETT, who has been in charge of the Owensville, Indiana plant of the Wilbert Burial Vault Company has been made general superintendent of the company's three plants and is making his headquarters at Decatur, Illinois. PAUL GARRETT is the new manager at Owensville.

A. C. BERG has been appointed manager of the road-machinery division of Gar Wood Industries, Inc., Detroit. He joined the company in 1919 and became assistant manager of the road-machinery division in 1934.

OTHO M. GRAVES, president of the General Crushed Stone Company, served as master of ceremonies at the award of the Army-Navy "E" flag to the Traylor Engineering & Manufacturing Company at Allentown, Pennsylvania recently.

BRUCE BUCK is the new superintendent at the Decatur, Alabama, plant of the Universal Concrete Pipe Company of Columbus, Ohio. "PAT" MARTIN has assumed similar duties at Universal's Amarillo, Texas, plant.

WESTON G. FROME has been appointed assistant general manager of the Explosives Department of the Atlas Powder Company. He was formerly general manager of the Atlas company's Giant Division at San Francisco.

LIEUT. COL. WALTER B. JONES of Tuscaloosa, Alabama, state geologist and director of the Alabama Museum of Natural History, is serving in New Guinea as geologist with the Fifth Air Force.

AXEL S. HELLSTROM, formerly associated with the Broden Construction Company, is now a member of the staff of the Parsons Engineering Corporation, Cleveland.

FRANK NUSSBAUM is erecting a new building to house his concrete-block plant at Berne, Indiana.

CHARLES O. JOHNSON, associated with his father in the management of the Blue Rock Products Company, Sidney, Montana, has joined the armed forces.

ARTHUR L. FIELDS, Portland motor-car dealer and long prominent in civic affairs, has been elected a director of the Oregon Portland Cement Company.

BEN F. LEASE, formerly manager of service and research, has been made domestic sales manager of the Athey Truss Wheel Company, Chicago.

RICHARD C. BROWNING, 26, former office manager of the Lehigh Portland Cement Company in Buffalo, has been missing in action since March 31. A lieutenant-navigator in the air corps he recently received an air medal for "exceptionally meritorious achievement." He enlisted in July, 1941.

PAUL L. HINEMAN, 35, a salesman for the National Lime & Stone Company, Columbus, Ohio, died at his home in that city suddenly being stricken just as he had returned from attending church. He had been associated with the company for seven years.

NANCY R. HUFFSTETTER, president of the Brown-Huffstetter Material Company of Indianapolis since the death of her husband, Harry C. Huffstetter, in 1941, passed away recently after an illness of several months.

T. W. Havely, president of the Central Rock Company, Lexington, Kentucky, and mayor of that city, whose untimely death on March 22 at the age of 47 was reported in the May issue of "Pit and Quarry." Mr. Havely was well known to the other producers of crushed stone having been active in the affairs of the National Crushed Stone Association for many years.

Minutes Instead of Hours for Replacing Dipper Lip

The term "renewable" is one of variable meaning, notably at the time when a dipper lip or front has to be changed.

The Amsco all-manganese steel *rivetless* renewable lip dipper (U. S. Patent No. 1,945,064) meets the present necessity of saving operating time and manpower.

All that need be done in removing a worn Amsco rivetless lip is to loosen the "U"-bolts between lip and back, remove four forged split keys between lip and front, and the lip is *off*. Putting on the new lip is just as quick and simple. No rivets or special tools are used, and yet the lip is fastened as securely to the body as if riveted. And the shovel down-time is a matter of minutes, instead of hours — or days.

The Amsco renewable lip feature largely reduces the delay and expense involved in removing worn riveted fronts and riveting on new ones because the lower front casting normally outlasts several lips and lip changes can be made in the field—no need for hauling the dipper to the shop for repairs.

The Amsco dipper takes a bigger bite and a greater heap load because of the "rolling-in" action of the extended lip contour with its sharp full-sweep sides, the finger-like teeth, and the smooth, unobstructed body interior. These features result in maximum speed of shovel operation. The slight outward taper toward the door eliminates arching or binding of material and the positive latching, clear-swinging door insures fast, clean dumping.

The Amsco renewable lip dipper is a "must" for these times of limited manpower.

Ask for Bulletin 641-D on Amsco dippers.

Renewable lip dipper; showing smooth interior and lip and teeth shaped for smooth, fast cutting.

Above: Showing detail of "U" bolts that hold lip to back casting. Left: Lip removed to show ease of replacement.

Amsco
AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Illinois
FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF.; ST. LOUIS, MO.
OFFICES IN PRINCIPAL CITIES

AMERICAN Brake Shoe COMPANY

C. H. STUTZ, 51, traffic manager of the National Cement Company, Birmingham, died at a hospital in that city on May 13. He was a native of Mobile, Alabama, and had lived in Birmingham the last 20 years.

ROBERT J. ROSS, 67, of Woodward, Alabama, for many years superintendent at the Birmingham Slag Company plant at Birmingham, died recently at Veterans' Hospital in Tuscaloosa, Alabama. He is survived by six sons and six daughters.

BYRON R. MCKENZIE, 52, of Detroit and Windsor, Canada, who operated a supply and paving company at Windsor, died in the Union Station at Toronto, Canada, recently of a heart attack. His son, James W. McKenzie is a member of the Royal Canadian Air Force.

W. HERSCHEL NEAL, 48, for 20 years superintendent of the Bloomington Limestone Company at Bloomington, Indiana, died at his home in that city April 17. He was a veteran of World War I and served overseas.

WILLIAM A. STALEY, superintendent of the Nugent Sand Company, Louisville, from 1925 until last year, passed away a few weeks ago.

ALFRED L. SMITH, for many years sales manager for the Basic Slag Company, of Kingston, Ontario, died recently at his home in Welland, Ontario. The deceased who was in his 90th year was widely known throughout Canada.

EUGENE FROST, assistant general manager of the explosives department and member of the board of directors of the Atlas Powder Company, died recently.

Legal Decisions

By LEO T. PARKER

●

Contract Held Void

Everybody knows that a valid contract must have "consideration." Legally the term "consideration" means money, valuables, property or, in fact, any act or thing of benefit to a contracting party. In the past it has been customary for parties to a contract to include a clause to the effect that the contract is "for valid consideration, receipt of which is hereby acknowledged." In fact, previously it has been conceded that a contract with this statement is valid. However, in February, this year, a higher court held otherwise.

For illustration, in *Podesta v. Mehrten,* 134 Pac. (2d) 38, it was disclosed that a property owner signed a contract giving a lessee the right to sell at any time within fifty years and at a specified price, the sand and gravel taken from the land. The contract permitted the construction and installation of gravel plants, structures, washing equipment and a railroad over a designated route. It provided further the amounts of money to be paid at varied intervals to the property owner.

It is important to know that the contract contained a clause acknowledging valid consideration. However, the contract did not state the amount of money that the property owner had received on the contract.

When a legal controversy developed over the validity of the contract, the lessee testified that he had paid the property owner $10 at the time the contract was signed. However, it seems that the higher court refused to believe this testimony of the lessee and, in holding the contract void, said:

"The question presented is an unusual one and we have been unable to find any authority directly in point. . . . There is also the fact that the contract itself, which Mehrten (lessee) signed, makes a recital as to the consideration and makes no mention of the $10. We believe that the trial court had a right to conclude that Mehrten was mistaken in his statement that he had paid the $10 for making the contract."

Inherent Defects

Various higher courts have held that the user or seller of material having inherent defects is liable, although the purchaser or user inspected the materials before or during their use.

For example, in *Barraque v. Neff,* 11 So. (2d) 697, it was shown that a contractor prepared plans and specifications and induced a property owner to accept "super-rock," consisting of a composition of cement and cinders molded into building blocks, for walls instead of brick for the walls. Later cracks and leaks appeared in the walls caused by the absorption of moisture and expansion and contraction of the "super-rock." The question presented the court was whether the contractor was liable because of using faulty materials.

The higher court held in favor of the owner, although the testimony proved that during the progress of the work the owner's architect had regularly inspected the building as the work progressed. This court said:

"There is no doubt that the defects in this case, which appeared within the year after the completion of the building, were due to faulty material or workmanship, because the using of 'super-rock' without waterproofing the walls proved to be faulty construction."

When Watchman Is Interstate Employee

Considerable discussion has arisen from time to time over the circumstances which result in a night watchman being an interstate employee and within the provisions of the Fair Labor Standards Act. A person engaged exclusively in guarding a plant shut down at night time is not an interstate employee. For illustration, in *Southern Corporation v. Walton,* 11 So. (2d) 912, it was shown that a night watchman was employed by a manufacturer. A sub-

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THE W. S. TYLER COMPANY CLEVELAND, OHIO

stantial portion of its products were shipped in interstate commerce. However, the watchman performed no service other than making hourly rounds of the plant at night. The question presented the court was whether he was engaged in "the production of goods for commerce" or in an occupation "necessary to the production of goods for commerce" within the Fair Labor Standards Act.

The testimony disclosed that the plant did not operate at night during the period of the watchman's employment; that the employer corporation was not engaged at night in the production of goods for interstate commerce while he was on duty; and that when fires were kept under the boilers in the plant at night, it was done by a fireman kept on duty for that purpose, and that when repairs were made occasionally at night to the machinery, such work was done by employees other than the watchman.

In view of these facts the higher court held the watchman not within the Fair Labor Standards Act. The court said:

"Presumably the night watchman slept during the daytime, while the other employees were engaged in the production of the goods for commerce. He contributed nothing to such work of production, nor to enable those engaged in production to more efficiently perform their duties. No more goods were produced by reason of his employment, and he would no doubt have been kept on duty for the purpose for which he was employed even if it had been necessary to close down the plant. If the plant had been running at night, the services of a night watchman would not have been required at all, even to satisfy the request of the insurance company."

On the other hand, see the case of *Doyle v. Johnson Brothers*, 28 N.Y.S. (2d) 452. This court held that a night watchman, whose duties were to guard the merchandise of his employer, engaged in interstate commerce, and to open the gates of the yard to allow the passage of his employer's trucks, and to act as fireman tending a furnace to keep the plant properly heated, was "engaged in the production of goods for interstate commerce" within the meaning of the Fair Labor Standards Act.

Also, in *Milam*, 157 S.W. (2d) 653, it was shown that a night watchman guarded the premises on which products sold in interstate commerce were manufactured. Occasionally he took telephone orders, and telephone calls after business hours. The higher court held this watchman engaged in interstate commerce.

Thus it will be seen that a recovery was permitted under the Fair Labor Standards Act in favor of night watchmen in all these cases where they were engaged in other manual activities which were at least indirectly connected with production.

Also, a recovery of wages under the Fair Labor Standards Act has been allowed in other cases where it was the duty of the night watchman to guard the materials intended for interstate commerce while stored in the yard or plant, and when loaded in freight cars or otherwise awaiting shipment. See *Robinson & Company v. Larue*, 1941, 178 Tenn. 197.

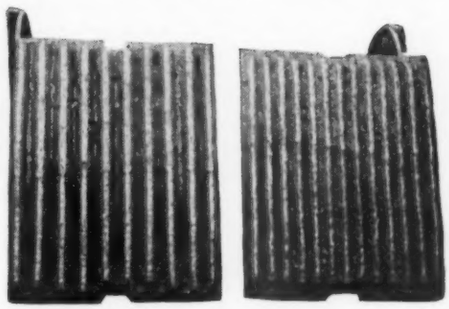
Shipper Liable for Freight Charges

The terms of every contract of shipment, so far as the service to be rendered and the compensation to be received are concerned, are fixed by a schedule filed with and approved by the Interstate Commerce Commission. Neither the consignor nor the consignee may by agreement modify the terms and, as above explained, the rates defined by the tariff can not be varied by contract.

For illustration, in *Baltimore &*

Crushes 4900 tons!

WHERE FORMERLY 1800 TONS HAD BEEN THE LIMIT!



WHEN *your* crusher jaws become seriously worn, don't think of throwing them on the scrap pile. Instead, save yourself the trouble of a costly replacement and an annoying shut-down by doing what one company does,—and that is to hard-face worn crusher jaws with wear-resistant Coast Metals. Here 4,900 tons of material are now being crushed, whereas formerly, with uncoated standard manganese jaws, 1,800 tons had been the limit.

Coast Metals Hard-Facing is of particular value wherever it is difficult or impossible to get new parts, or replace those which are worn out because of the heavier load and longer periods of service to which equipment today may be subjected.

Easily applied by arc or acetylene welding to surfaces, edges, points of new or old equipment of any ferrous metal. Let us tell you how Coast Metals Hard-Facing can meet *your* particular needs.

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YOUR EQUIPMENT'S LIFE PRESERVER AGAINST WEAR

Ohio Railroad Company v. Illinois, 46 N.E. (2d) 144, Illinois, it was shown that a common carrier filed suit to collect $9,801 from a shipper as the remainder of freight charges claimed to be due on a number of shipments of material. The shipper prepaid the freight charges at the export rate and the additional charges for which the suit was filed arose because the export rate was not applicable to the shipments, but the domestic rate, which is higher than the export rate, was the one applicable under the tariffs of the carriers involved.

During the trial the testimony proved that the bills of lading contained a no-recourse clause signed by the shipper, providing that the carrier should not make delivery of the shipments without payment for the freight. Notwithstanding this clause, the higher court held the shipper liable for full payment of the unpaid freight charges, and said:

"Where the carrier manifests an intention to demand prepayment of the charges, the signing of the 'no-recourse' stipulation by the shipper is ineffective. The law requires a shipper to pay all the charges in advance, if demand therefore is made by the carrier. Delivery of the shipment does not change the primary obligation of the shipper to pay the charges. Where the carrier insists on prepayment of the charges the shipper can not, by signing the 'no-recourse' stipulation, avoid its obligation to pay all the charges, and if, through some mistake, all the charges are not collected in advance, the liability of the shipper to pay persists."

Foreman Legal Employee

The Fair Labor Standards Act provides that minimum wages specified by this federal law are not applicable to *bona fide* executives. The question in the minds of many plant owners is: Who is an executive?

In *Zaetz v. General Instrument Corporation,* 30 Atl. (2d) 504, it was shown that an employee regularly directed the work of other employees. He offered suggestions as to hiring, firing, and changes in the status of other employees. He exercised discretionary powers and was compensated on a salary basis more than $30 per week. He sued his employer to recover time and one-half for overtime over a period of several months. The higher court refused to hold the employer liable, although this employee performed some ordinary work. However, this higher court held that a "working" foreman is not an executive. Therefore, a working foreman must be paid the wages specified by the Fair Labor Standards Act.

Labor-Union Law Void

The law recognizes the right of workers in trades, crafts, guilds, and arts, whether composed of skilled or unskilled workmen, to organize and invite others to join them. When organized, they may use the organization to promote their social, civic, and economic betterment, among other things, that of securing as much as they can for their labor. Employers may also organize for similar purposes and for the purpose of securing the best possible return on their capital. Every other profession and business may organize for like purposes, but when organized, the law recognizes no distinctions among them but all must conform alike to its decrees and mandates. Every organization including its individual members is bound and protected by social and constitutional guaranties that all must respect the legal right of others to peacefully own property and enjoy the pursuit of a trade, business, or profession. The law will not permit such rights to become a prey to those who would without just cause invade them.

For example, in *Pittman v. Nix,* 11 So. (2d) 791, it was disclosed that a city enacted an ordinance prohibiting the organization of labor unions, solicitation of members, and solicitation of membership fees as a prerequisite for joining a union. In holding this ordinance void, the higher court said:

"Our conclusion is that the ordinance in question is contrary to fundamental legal and constitutional principles."

Questions and Answers

[Mr. Parker will be glad to answer questions regarding legal problems of PIT AND QUARRY readers. Questions should be addressed to Leo T. Parker, Legal Editor, PIT AND QUARRY.—ED.]

Legal Editor: I have been employed as superintendent of a stone quarry with the same company for the past 25 years. On March 10, 1943, this company had me work in a wet snow storm for 8 hours. I did not want to do this work on account of the storm. But the manager insisted that the general manager wanted it done. I objected that we had time enough without being exposed to getting wet. I caught an awful cold in chest and lungs and had to quit work. Doctors said I had developed silicosis. The new York State Labor Department's specialist said I had pneumonokoniosis.

The New York State Department of Labor has been paying all my bills, and also have been paying compensation. This is what I am anxious to know as I am not working. The doctors say I must not do any thing. The insurance company set aside $4,000 to cover me. I did not ask for nor object to this and they are sending me $50 every two weeks. Should something go wrong, and I need more assistance later, could I bring suit against the company, my employer, and gain anything? Thanking you in advance for this information.—J. C.

Answer.—Modern higher courts hold that before an employee signs for or accepts benefits from Workmen's Compensation Insurance, the employee may elect to either accept the insurance benefits or sue the employer for damages. Therefore, under the circumstances it is my opinion that you can not obtain additional payments from your em-

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ployer. Higher court decisions as follows verify this.

The latest higher court case is Adam, 168 S.W. (2d) 1092, reported April, 1943. In this case the higher court refused to allow an employee damages for contracting bronchiectasis because the employee failed to prove that the plant in which he worked was not a reasonable safe place to work. The court held further that the employer is not liable although the plant is "full" of dust if the testimony proves that the employer exercised "reasonable" care to remove excess dust from the plant.

Also, see (107 O. S. 387) where it was disclosed that a state law provides that every employee who makes application for an award, or accepts compensation from an employer, waives his right to sue his employer in any court.

An employee filed a request for award of compensation with the Industrial Commission who rejected the claim on the grounds that the employee was not working within the scope of the employment when the injury was sustained. The employee then sued his employer for damages and the higher court held that he has this right.

On the other hand, in 91 O. S. 205, the higher court said:

"Having made his application for compensation from the insurance fund, plaintiff (employee) waived his right to exercise his option to institute a proceeding in court, and his proceeding in the court of common pleas should have been dismissed."

Also, in *San Francisco Company v. Pillsburg, 170 Cal 321*, an employee sought compensation under the state compensation act. The compensation was not allowed because it was discovered that the employee had previously sued his employer for the injury sustained.

The question arose whether the employee could obtain compensation from the Industrial Commission after being refused damages by the higher court. The court held that the employee could do so.

Legal Editor: About six months ago we ordered three machines. These machines were promptly shipped and delivered. I assembled all the machines but installed only one of them. I found that this one did not comply with the manufacturer's guarantee. However, I needed the machine and paid for it, at the same time requesting the manufacturer to take back the other two machines explaining that they were not what he had guaranteed them to be. The manufacturer refuses to take back these two machines and states that since I accepted one of the lot of three machines I am compelled to pay for the other two.

What I want to know is: If I accept one of a lot of merchandise which is not equal to the quality guaranteed by the seller, am I compelled to accept and pay for the other merchandise in the lot?—F.A.B.

Answer: No, you are not compelled to accept the other two machines, provided they do not meet the guarantee made by the manufacturer at the time the contract of sale was completed. In a leading case (66 N. H. 621) a purchaser ordered five lots of merchandise. After receiving and examining the complete shipment he accepted three of the lots and set his check in payment therefor, but refused to pay for the other two lots on the ground that the entire lot of the merchandise failed to conform to the contract regarding the quality. The seller sued

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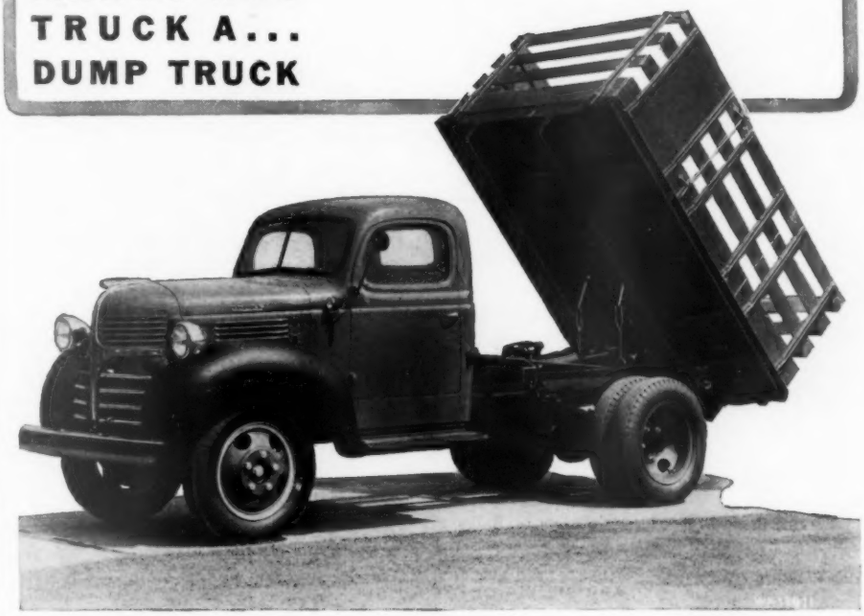
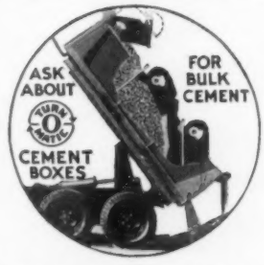


Install HERCULES DOUBLE-ARM HYDRAULIC HOISTS under your platform, stake, express or special bodies, which are now idle. Unload the easy way!

With wartime restrictions preventing your purchase of all the new equipment you need, it's more important than ever that present equipment be used at maximum efficiency.



Model KXE Hercules Booster Hoist, with 6" cylinder, for bodies up to 12 feet long. Rated capacity of 4 tons with a 9 foot body. Control valve is operated from the driver's seat, and the low oil pressure required assures long life of unit.

Reinforcing plate relieves lifting strains. Assembly includes 12 foot steel sills for reinforcement of wood body sills.

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is in what it costs per yard per 100,000 yards. On that basis a HAISS will prove out to cost you less than anything else we know of . . . Write for catalog.

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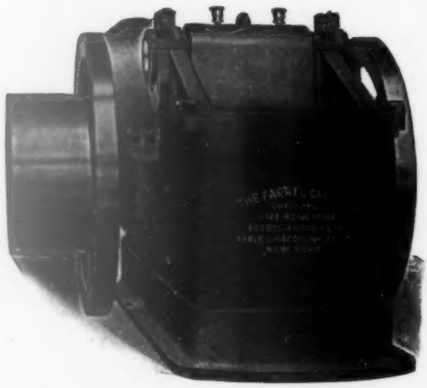

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the purchaser for the full value of the shipped merchandise, on the ground that since the buyer had accepted three lots of the merchandise, he was bound to accept and pay for the other two lots. However, the court held the buyer not liable and explained that a purchaser may refuse to accept *any or all* of a shipment of merchandise which does not meet with the terms of a guarantee. This court also clearly held that acceptance by the purchaser of a portion of the order does not in any sense obligate him to pay for the remainder of the lot, provided he promptly notifies the seller that the merchandise is not satisfactory and that he intends to return a portion of the shipment. (See also, 91 N. Y. S. 722.)

Legal Editor: We have a suit with the owner of a vacant lot on which we stored or placed some valuable equipment. The owner of this lot agreed to take care of our equipment for $10 per month. We signed an agreement. Later a digger worth $5,000 disappeared. The owner of this lot claims that his receipt limited his liability to $25 valuation. It is claimed that the limitation clause in the receipt is valid although we did not sign the receipt. We did not see it as it was in small type. Can you cite any higher court cases in our favor? If so will appreciate it.—W.S.G.C.

Answer: In the leading case of *Central v. Pickering*, 114 Ohio 76, it was disclosed that a property owner issued a receipt limiting the value of equipment to $25 for each item accepted for safe keeping. Printed in red ink on the receipt were the words: Read this receipt and contract carefully. Since the owner of the equipment did *not* sign this receipt, the lower court held the owner entitled to recover the full value of the equipment. However, the higher court reversed the verdict and, in holding the owner of the equipment bound by the limitation clause, said:

"It is claimed by Pickering (owner) that the receipt did not constitute a contract binding upon him because no inquiry was made of the value of the goods and his attention was not called to the paragraph of the receipt. . . . The judgment should have been in the sum of $25."

Therefore, this case is directly opposite to your interest. On the other hand, a limitation clause of this nature is not valid or effective if the goods are lost, or destroyed through negligence on the part of the owner of the lot, because the courts will not permit a bailee to avoid liability where the loss results from his failure to use ordinary care to safeguard the equipment. (See *Lyon*, 74 Cal. App. 87.) However, there are records of decisions by higher courts which refused to hold the owner of a storage place protected by a limitation clause, particularly if the clause is not in conspicuous type, or if the owner did not sign the receipt or his attention was not directed to the clause. Therefore, it is my opinion that you are not liable on the limitation clause because (1) it was printed in small type, (2) you did not sign the receipt, and (3) the contents of the receipt were not called to your attention.

TRAFFIC News Digest

More than $350,000,000 will be saved on an annual basis by consumers, producers, processors, and distributors as a result of a reduction in railroad freight rates that went into effect May 15.

The reduction was ordered by the Interstate Commerce Commission following a petition from the Office of Price Administration on the ground that further collection of increases granted early in 1942 was unnecessary and inflationary in effect.

I.C.C. Reports

Cement.—Docket No. 28775. Colorado Portland Cement Company *vs.* Apache Railway Company *et al.* By division 3. Dismissed. Carload rates and minimum weight on cement, in bulk or in packages, from Portland, Colorado, to destinations in Arizona, not shown to have been or to unreasonable, or otherwise unlawful, and defendant's failure to make an allowance for dunnage on the same traffic, when shipped in bulk not shown to have been or to be unreasonable, or otherwise unlawful.

Motor Reports

Pine Bluffs, Wyoming. MC 79726, Sub. 2. H. N. Simkins, extension. Certificate proposed. Cement, points within 3 miles of Laporte, Colorado, to Laporte.

Burns, Wyoming. MC 60180, Subl. I. W. Bawden, extension. Certificate recommended. Cement between points within 3 miles of Laporte, Colorado, and Fort Collins, Colorado, over U. S. Highway No. 287.

Raritan Township, New Jersey.

MC 29813, Tar Asphalt Service, Inc., contract carrier. Permit proposed. Continuance of operation, bituminous road materials between Kearny and New Brunswick, New Jersey, on the one hand, and points in New Jersey, New York, and Pennsylvania, within 200 miles of New Brunswick, including New Brunswick, on the other.

Scranton, Pennsylvania. MC 103937, Sub. 1. Edward Oressey, extension. Certificate proposed. Coal, from Scranton and points within twenty miles thereof to points in the New York City commercial zone.

Board Meetings

Pacific Coast Board. June 16-17, 1943—Los Angeles.

Southeast Board. June 17, 1943—Atlanta.

Ohio Valley Board. June 21-22, 1943—Indianapolis.

Central Western Board. June 23-24, 1943—Colorado Springs.

Pacific Northwest Board. June 23-24, 1943—Tacoma.

Great Lakes Board. June 29-30, 1943—Cleveland.

Average Load Increased

The Association of American Railroads announced that the railroads of the United States attained a new high record in the average number of tons a car in 1942. The average weight for that year was 40.1 tons a car, and was the fourth consecutive year in which a new high record had been established. The 1941 average was 38.2 tons, and in 1940 the average was 37.7 tons.

This record resulted from the country-wide program in which shippers and receivers of freight united to produce maximum efficiency in the loading of cars and also from General Order O. D. T. No. 18, applying to carload freight, which requires cars to be loaded heavier than in the past.

Truck Rationing

According to the Office of Defense Transportation 21 per cent. of all the commercial motor vehicles released for civilian use from the nation's pool of new trucks in the first year of allocation, which began March 9, 1942, were purchased for construction work directly connected with the war effort.

In that year the War Production Board approved the release of 51,241 vehicles for civilian use. Of these, 8,330 were light trucks, 26,916 medium trucks, 7,889 heavy trucks, 6,630 trailers and 1,476 miscellaneous. Twenty-three per cent. of the light, 23 per cent. of the medium and 18 per cent. of the heavy trucks were withdrawn for war construction projects. Vehicles for civilian use are released by the War Production Board on recommendation of the O. D. T. Common carriers were granted 7.44 per cent. of the vehicles released for civilian use, and 50 per cent. of the trailers allocated went to for-hire carriers, many of them petroleum carriers. It was also stated that 61 per cent of all applications certified by local allocation officers were approved by the allocation section of the O. D. T.

Central Freight Association

Docket 73253. (Shipper's proposal) Lime, common, hydrated, quick or slaked, also agricultural and fluxing. Carload. Establish a rate of 20 cents per hundred, minimum weight 30,000 pounds, and 17 cents per hundred, minimum weight 50,000 pounds from Speed, Indiana, to Ceico, Ohio. Subject to Ex Parte 148 increase.

Docket 73264. (Shipper's proposal) Sand, all kinds, and gravel, in open-top cars. Carload. Establish a rate of 88 cents per net ton from

For every haulage job in open pit or underground, PSC Cars deliver on schedule!

Ruggedly designed and built to meet the gruelling demands of 24-hours-a-day war time service. Through every shift they stay on the job! Get the facts in Bulletin No. 71.

"WORLD'S LARGEST BUILDER OF INDUSTRIAL RAILWAY CARS"

PRESSED STEEL CAR COMPANY, INC.
INDUSTRIAL DIVISION
PITTSBURGH, PA.

Chardon, Ohio, to Ashtabula and Ceico, Ohio. Subject to Ex Parte 148 increase.

Docket 73269. (Carrier's proposal)—Brick, and articles taking brick rates, carload minimum weight 60,000 pounds, except when car of less capacity is furnished, then marked capacity will govern. Rule 24 of Official Classification not to apply. Establish a rate of $2.37 per net ton from Youngsville, Pennsylvania, to Rochester, New York, P. R. R. and intermediate stations Fillmore, New York, to Rochester, New York, as shown in Agent Leland's O&P No. 57. *Via* P. R. R. Direct. Subject to Ex Parte 148 increase.

Trunk Line Association

Docket M-4555—Increase carriers)—To cancel commodity rate of 16 cents per hundred pounds on cement, common, hydraulic, masonry, mortar, natural or Portland, carload, from Jamesville, New York, to Norfolk, New York. Permitting former rate of 17 cents per hundred pounds to apply in place thereof. Reason: To place rate on proper basis.

Docket 41491—(Shipper's proposal)—Limestone, crude, crushed, foundry, furnace or fluxing, in bulk, carload, minimum weight 90 per cent of marked capacity of car, etc. Establish a rate of $1.28 per gross ton from Thomasville, Pennsylvania, to Chester, Downington, and Eddystone, Pennsylvania, Claymont and Wilmington, Delaware. Reason: Comparable with rates from other points in the immediate vicinity.

Docket 41508—(Shipper's proposal)—Cement-cinder blocks, carload, minimum weight 60,000 pounds. Establish a rate of $2.31 per net ton from York, Pennsylvania, to Arlington, (Waterloo), Virginia, in place of current sixth class rate of eighteen cents per one hundred pounds. Reason: Comparable with rates from and to other points.

Docket 41512—(Shipper's proposal)—Fire clay, l.c.l, from origins in Eastern Territory subject to Groups A and B rates. To Trans-Continental Territory Destinations subject to Rate Bases 2 and 3 rates, $2.50 per hundred pounds, in place of current fourth class rates of $3.72 from Group A and $3.63 per hundred pounds from Group B. Reason: Comparable with rates on similar commodities.

TRADE NOTES

The Associated Equipment Distributors will forego the usual mid-summer membership meeting scheduled for June, 1943. Instead, streamlined meetings of the board of directors and the board of governors will be held at the Edgewater Beach Hotel, June 6, 7, 8 and 9.

The Hardsocg Wonder Drill Company, Ottumwa, Iowa, was reorganized on May 1, 1943 with the following officers: H. A. Brown, president; L. C. Hardsocg, vice-president; W. L. Martin, secretary; H. Sigmund, treasurer. The new management proposes to push actively the manufacture and sale of its regular line of air tools and portable compressors. When founded in 1904 this company pioneered in the manufacture of portable pneumatic drills and paving breakers.

The name of the American Brake Shoe & Foundry Company has been shortened to American Brake Shoe Company following the annual meeting of the company held recently in New York.

An Army-Navy "E" award for excellence in war production was awarded the Climax Engineering Company, Clinton, Iowa, with appropriate ceremonies on May 7. The concern manufactures internal-combustion engines.

The Claude B. Schneible Company, Chicago, maker of dust-collector systems has announced the following appointments: C. C. Hermann to be general manager; L. C. Beers to be sales manager. Both men have been with the company since 1937.

The Robins Conveying Belt Company, Passaic, New Jersey, announces that it is shortening its name to Robins Conveyors, Inc.

The new name is more truly definitive of the scope of its products which range from idlers, pulleys, and other elements of conveyor systems to car dumpers, vibrating screens, and other large machinery for handling, stocking and reclaiming coal, coke, ore, minerals, sand, gravel and other bulk materials.

Many companies serving the pit-and-quarry industries have been awarded the Army-Navy "E" award. Recent additions include: Stearns Manufacturing Company; Hendrick Manufacturing Company; Thomas Laughlin Company; LaPlant-Choate Company; Whiting Corporation; Sullivan Machinery Company; Traylor Engineering & Manufacturing Company.

The name of the Steacy-Schmidt Manufacturing Company, a subsidiary of Hardinge Company, Inc., has been changed to the Hardinge Manufacturing Company.

The principal reason for the change is to identify the two companies more closely with each other than was possible heretofore.

The Link-Belt Company announces the elevation of Frank S. O'Neil, general manager of the company's Indianapolis operations, to the position of vice-president. Vice-president James S. Watson, Indianapolis, who has just rounded out 50 years of service, plans to retire at the end of this year from active duty. He continues as a director of the company.

Trade Literature

Lower Earthmoving Costs in War and Peace, 8 pages. (Bulletin A-36), R. G. Le Tourneau, Inc., Peoria, Illinois.

Wheelco Measuring and Control Instruments, 16 pages. (Bulletin Z6200), Wheelco Instruments Company, Chicago.

Hard-Facing with Coast Metals Makes Your Equipment Last Longer, 12 pages. Coast Metals, Inc., New York City.

Type WD Direct-Current Single-Operator Arc Welders, 12 pages. (Bulletin 1440J), General Electric Company, Schenectady, New York.

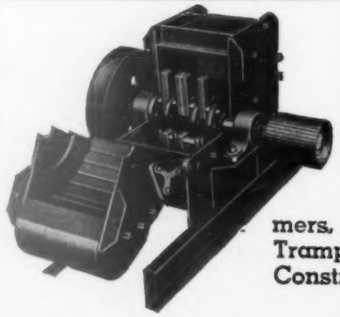
Variable Speed Transmission with Built-in Reducer, 16 pages. (Catalog TR-432), Reeves Pulley Company, Columbus, Indiana.

Rex Pumpcrete Practice, 164 pages. (Bulletin 422), Chain Belt Company, Milwaukee.

Limitorque Control, 70 pages. Philadelphia Gear Works, Philadelphia.

Equipment for Mines, 64 pages. (Catalog 600), Chicago Pneumatic Tool Company, New York City.

Power Transmission Machinery, 24 pages. (Catalog 44), Teuscher Pulley & Belting Company, St. Louis.



LET NEW HOLLAND HAMMER CRUSHERS INCREASE YOUR 1943 PRODUCTION ON FINER AGGREGATES AS WELL AS AGRICULTURAL LIMESTONE AND LOWER YOUR OPERATING COSTS. Features include Self Aligning Ball or Roller Bearings, Adjustable Hammers, Adjustable Breaker Plate, new design Tramp Iron Pocket and Welded Plate Steel Construction.

Write for Literature

NEW HOLLAND NH MACHINE CO.

NEW HOLLAND, PENNSYLVANIA

NEW MACHINERY and SUPPLIES

● Drag-Line Bucket

The Dragliner is the trade name for a new drag-line bucket designed and sold by the Daniels-Murtaugh Company, Cedar Rapids, Iowa, equipment designing engineers. It is being built by the Universal Engineering Corporation, also of Cedar Rapids.

The Dragliner has successfully come through tough service tests and is designed throughout to withstand severe operating condition. Ribbed reinforcing sections are present at all points of stress and wear.

Features of the Dragliner are the combination bumpers and drag-chain hitches. When the empty bucket is dropped, it

New drag-line bucket.

lands on the bumpers which are designed to ably take this shock. In this way the arch, which is back of the bumpers, is protected. These bumpers also shield the drag hitches so that the bucket does not fall on them, resulting in a longer service life for the hitches.

Weight is well distributed, permitting a low hitch. As a result, this bucket takes hold in tight material without a tendency to stand on its nose.

Replaceable manganese-steel lips give support to the arch at its base. The ends of the arch fit into recesses in the lip casting. The bumpers firmly tie lip, arch and body together. There are no interior obstructions to retard digging and the bucket shape is conducive to fast loading and clean dumping.

Lips with either four or five teeth are available. Either a one-piece tooth or two-piece tooth with renewable point is available. Both types are keyed to lip in the customary manner.

● Feeder

Arnold & Weigel, Inc., Woodville, Ohio, has made several additions to its small feeding device which is adaptable for feeding small size dry materials from storage bins, hoppers, etc. The adjustable feeding mechanism can be changed while the feeder is in motion, and the agitating mechanism is continuous with the speed of the feeding rotor, thus preventing bridging of materials being processed.

The improved feeder.

Although the illustration shows the feeder being driven through a gearhead motor unit, a closer feed adjustment can be had when the feeder is equipped with a Reeves variable-speed transmission.

● Torque Recorder

To provide an accurate continuous record of thickener operation, the Dorr torque recorder has been developed by The Dorr Company of New York. Designed for use on Dorr "A" thickeners equipped with a standard overload alarm, it is

"Specify CONTINENTAL"

BELT CONVEYOR IDLERS

Alert operators are reducing their bulk material handling costs by installing Continental Belt Conveyors. Continental Idlers have what it takes—they are designed and built to do a real job. They will do your job better and cost no more than ordinary idlers. Crushed stone, cement, slag, sand, gravel and similar products are being handled daily for a few cents a ton via Continental Conveyors.

Continental Belt Conveyor Idlers are made in a wide range of types and sizes for all kinds of service, so if you contemplate a new conveyor installation or the replacement of idlers on old conveyors, be sure to thoroughly investigate Continental Idlers before you write your specifications.

Write today for a copy of Bulletin ID-103 so you can better judge for yourself the superior features of this Precision built, Streamlined, Efficient CONTINENTAL CONVEYOR IDLER.

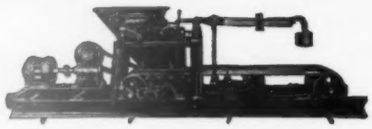
INDUSTRIAL DIVISION

CONTINENTAL GIN COMPANY

BIRMINGHAM, ALA.

ATLANTA, GA. DALLAS, TEX. MEMPHIS, TENN.

SCHAFFER POIDOMETER



Fast, Accurate, Economical in Proportioning Materials

Schaffer Poidometer may be counted upon to step up output and to maintain exactness in the proportioning of materials at all speeds. Sturdily built to stand up under the fast tempo of war-time production its use assures both accuracy and economy.

If you have a proportioning problem—raw or finished materials—write for Catalog No. 5.

SCHAFFER POIDOMETER CO.
2828 Smallman St. PITTSBURGH, PA.

It's a Fact!

PIT AND QUARRY

Has More Than

Twice as Many

Paid Subscribers

Among Producers

of Sand and Gravel

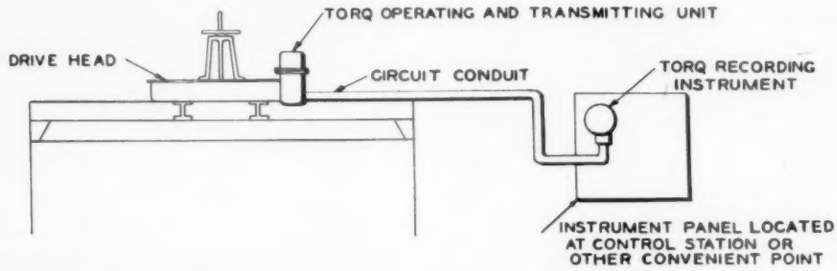
as Any Other

Magazine Serving

This Field

particularly applicable where appreciable fluctuations in the drive unit load are caused by variations in solids accumulation in the thickener. The recorder can be installed on Type "A" thickeners now in use as well as on new units.

The torque recorder consists of two electrically-connected control parts—the transmitting unit and the recording unit. The transmitting unit is built into the standard overload alarm on the drive head, while the recording unit can be located at the control station or any convenient point offering easy access to the operator.


TORQ OPERATING AND TRANSMITTING UNIT
DRIVE HEAD
CIRCUIT CONDUIT
TORQ RECORDING INSTRUMENT
INSTRUMENT PANEL LOCATED AT CONTROL STATION OR OTHER CONVENIENT POINT

Sketch of torque recorder on Type "A" thickener.

As the load develops in the thickener, the impulse is carried directly to the transmitting unit from the overload alarm mechanism. The transmitting unit in turn carries the impulse to the recording unit, where it is transcribed upon a calibrated 24-hour chart, 12 inches in diameter. All variations are continuously recorded in this manner—providing a complete record of thickener operation for each 24-hour period.

In addition to the obvious advantages of having the complete operating history of the thickener available for analysis in the event of difficult operation, the torque recorder provides valuable help in obtaining maximum results as well. As the recorder will indicate the gradual accumulation of solids, the operator will be able to avoid troublesome overloads or temporary shutdowns by speeding up the pump discharge. The operator will also find it an easy matter to obtain maximum density in the underflow by regulating the speed or stroke of the pump, without any danger of serious overloads developing.

Reasonable attention to the record of operation precludes any chance of an overload developing that would be serious enough to cause the standard overload alarm to cut the motor. Nevertheless, double protection is afforded by the fact that the standard overload alarm and cut-out arrangements are not affected by the application of the recording instrument.

● Vertical Kiln

The development of the Kennedy vertical kiln evolved from the observation and success obtained by actual operation of the patented Kennedy preheater and deheater, such as is used in connection with rotary kilns when highest efficiency is sought.

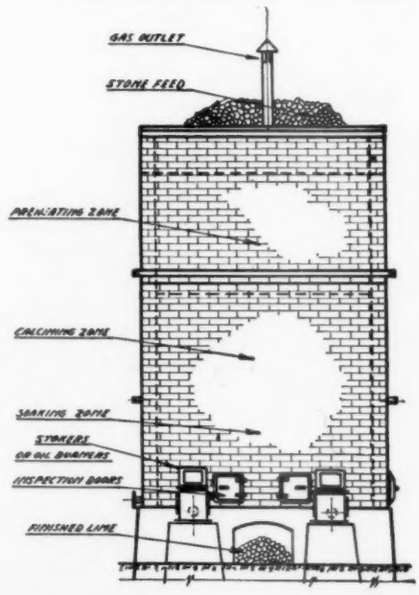
From the study of the successful preheater, the Kennedy vertical lime kiln was developed to enable lime plant operators to have an efficient kiln that will handle small-size stone without necessitating the expensive rotary kiln installation when smaller tonnage of burned lime and pebble is needed.

The vertical kiln is designed along the lines of and somewhat resembles the preheater which is a fuel-saving accessory to a rotary kiln. After studying actual operation of a preheater it was a natural step to devise a small preheater with a calcining chamber and a de-heating chamber, all in one unit.

The vertical kiln is built in capacities of five tons and ten tons of lime per day. When larger capacity is required a battery of two or more units can be installed. Basically, the kiln consists of a stationary brick chamber divided into three parts: a stone preheater; a calcining unit; and a lime deheater. The chamber contains a quantity of specially-designed, high-heat-resisting brick tiles which control the inlet and exist of the hot gases through the stone bed.

The stone is fed at the top of the chamber; passes through the chamber at an even flow and is withdrawn at the bottom by means of a mechanical adjustable discharge feeder, which regulates the time it requires for the stone to pass through the calcining zone and soaking pit in view of using all of the heat units as near as is possible, thus producing a lime which is neither over-burned nor under-burned.

The hot gases enter the chamber from a dutch-oven-type combustion chamber which is fired by oil or gas burners, or by commercial stokers when burning coal. An induced draft fan controls and



Sketch of kiln showing location of parts.

directs the flow of the gases through the stone bed. A second smaller fan draws air through the deheater and furnishes preheated air to the burners.

The movement of the stone and lime through the chamber is extremely slow. It remains in the preheater and calciner zone from six to eight hours and in the cooling zone from eight to twelve hours.

A similar cycle takes from three to four hours in a conventional rotary kiln, or about one-fifth as long as in the vertical kiln. The temperatures therefore can be easily controlled and flame and lime temperatures are adjusted by means of thermostatic control in the exit gases, thereby making the operation of the kiln practically automatic.

● Grouser Lugs

Tractor grousers that are worn mean a great loss of traction efficiency. The result is fewer and smaller loads per day —less work at increased costs of handling, besides expensive delays and loss of valuable time on idle equipment.

Bulldog tractor Grip-Lugs, when applied to worn grousers, not only reduce expensive replacement costs, but save time and labor by greatly increasing traction. Labor and heavier loads are made easier with much less stress and strain on the machine itself.

Grip-Lugs assure maximum wearability. They are made of special work-hardening alloy steel which becomes harder and tougher with use, and will wear as long, or even longer, than original grouser. They are easily welded to worn grousers. These new Grip-Lugs are grooved and beveled on both sides to facilitate laying a welding bead along the edge. The Allied Steel Products Company, Cleveland, is the supplier.

● Vibratory Conveyor

The Syntron Company, Homer City, Pennsylvania, has developed a line of long vibratory conveyor equipment in various styles and capacities.

The accompanying illustration shows a 35-foot section of a 130-foot flat pan type conveyor for handling extremely hot materials. The conveying action is accomplished by high-speed vibration set up by multiple, pulsating driving magnets.

There is an entire absence of mechanical moving parts such as motors, gears, bearings, eccentrics, counterweight, rollers, etc. Control of the rate of flow of material through the conveyors is by rheostat from either close by or from a remote point. This can also be arranged for automatic control.

Trough styles can be supplied in either flat pan, as illustrated, or in sealed, tubular sections with or without multiple intake openings or multiple discharge gates at various points. The driving magnets can be either below the trough, as illustrated, or above the trough for clearance, and can be either floor mounted or cable suspended from above.

A section of the vibratory pan conveyor.

● Admixture

A powder which is added as an admixture to concrete in the ratio of 1 pound per bag of cement to improve the quality of the concrete and to eliminate honeycombing and faulty construction joints has been developed by Sika, Inc., Passaic, New Jersey. This powder, known as Plastiment, increases the plasticity and workability of the mix, its impermeability and also the bond between concrete and reinforcing steel.

The addition of this small amount of Plastiment enables the concrete crew to prepare the mix with 8 to 15 per cent. less water and yet not lose plasticity or workability, according to the maker. It is reported that it also increases the strength of concrete of the same plasticity as much as 30 per cent.

The details of the use of Plastiment as well as data on Sika integral waterproofing compounds are given in detail in a new bulletin "Structural Waterproofing Compounds" which may be secured direct from the manufacturer.

● Cement Unloader

Faster unloading of bulk cement from box cars is one of the needs of concrete-mixing plants. Where standard bulk-cement cars are used, unloading has not been a problem but, with the increasing use of lined box cars for shipping bulk cement, new methods and devices have been sought to facilitate and speed up the work.

The Butler Carscoop, designed for speedy unloading, consists of a short-wheelbase tractor with a front scoop of 10 cubic feet capacity which can dump 4½ feet above the floor level. The folded transmission, which is the secret of the short length of the Carscoop, aids in the easy maneuvering of this gasoline or electric-powered machine, giving it a 6½-foot turning radius. It is built by the Butler Bin Company, Waukesha, Wisconsin.

● New Bag Plant

To meet the rapidly increasing war needs for packaging in the south, the Bemis Brothers Bag Company is increasing its production of multiwall bags in that section by relocating at Mobile, Alabama, existing equipment to produce sewn and pasted, valve and open-mouth, multiwall paper bags. This move will result in the saving of transportation facilities so needed for the war effort.

Conserving Vital Steel
....AND EVERY INCH A LONGER LASTING SCREEN
for sizing Stone, Gravel, Sand and all Mineral Aggregates
Buff-Aloy ABRASION RESISTANT Wire Cloth
The greater durability of "Buff-Aloy" over ordinary steel has long been known to oldtime users. Today, the relative scarcity of steel has driven home this fact still further. New users have been quick to appreciate the greater tensile strength and fatigue coefficient of "Buff-Aloy" Wire Cloth. They have definite evidence of its longer lasting qualities in the savings earned through use.
Equally important to more efficient service is the carefully controlled crimping. There are no weak spots - no possible damage to the core.
Priced reasonably. Woven in all standard weaves and sizes. (Special sizes woven to order).
CATALOG 11-BE on all types of "Buffalo" Wire Cloth Sent on Request
DOING BUSINESS FROM COAST TO COAST FOR 74 YEARS
Buffalo WIRE WORKS CO., INC.
ESTABLISHED 1869 AS SCHEELER'S SONS
526 TERRACE
BUFFALO, N. Y.

Make a Better Product and Save in Cost of Lime Production by Using

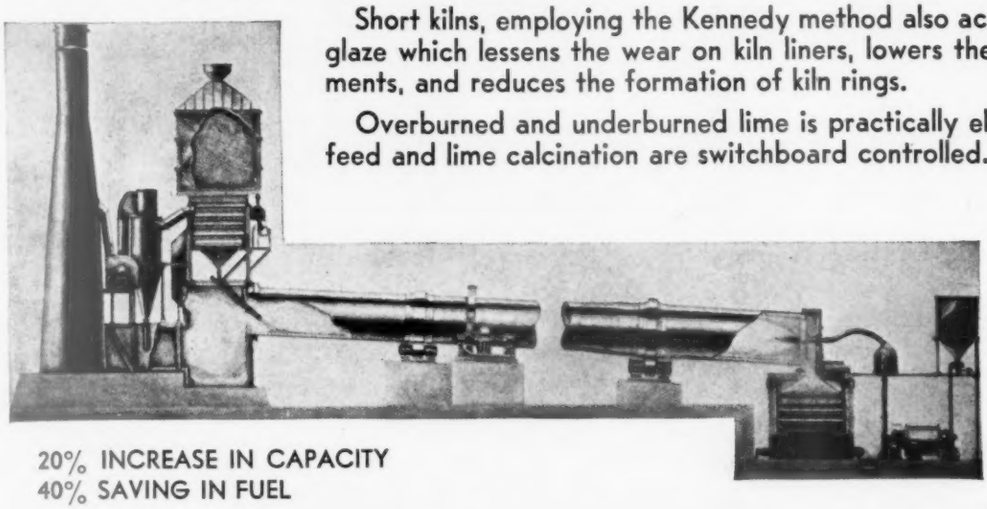
KENNEDY STONE PREHEATER, CALCINER & SOAKING PIT

It has been known for many years that better lime could be made in rotary kilns than in vertical kilns, but at a considerable handicap in price.

The great length of former types of rotary kilns, sometimes exceeding 400 feet, has failed to solve the problem of efficiently reducing the temperature of the exit gases.

Now, thanks to the Kennedy principle of preheating and deheating, it is possible to make a high-grade lime of better quality than was formerly obtainable in long or short kilns at greatly reduced cost of production.

This principle permits the effective recovery and use of the exit gases, and in actual operation has shown 40% saving in fuel, with capacity increased 20%, and more.



Short kilns, employing the Kennedy method also acquire an internal glaze which lessens the wear on kiln liners, lowers the power requirements, and reduces the formation of kiln rings.

Overburned and underburned lime is practically eliminated. Coal feed and lime calcination are switchboard controlled.

20% INCREASE IN CAPACITY
40% SAVING IN FUEL

ASK FOR BULLETINS No. 401 & 770

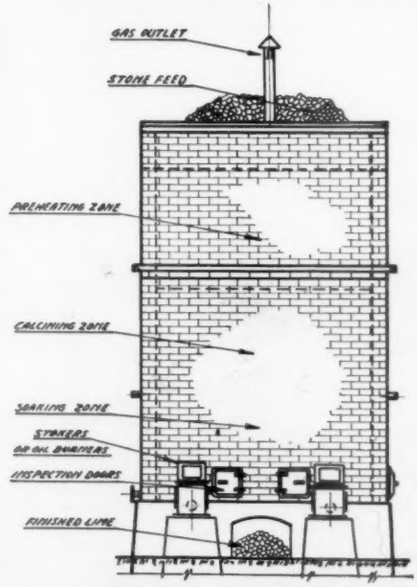
KENNEDY VERTICAL CONTINUOUS DISCHARGE KILN

We offer the Kennedy Vertical Continuous Discharge Kiln to the operator who desires to produce a better grade of lime but whose quantity requirement is too small to warrant a Preheater & Rotary Kiln installation.

This kiln is designed to calcine stone ranging in size from 3/8" to 1 1/4", thus utilizing what would ordinarily be waste for the old type vertical kiln. The kiln is simple to erect, simple to operate; can be fired with gas, oil or coal. Fuel, being thermostatically controlled, makes the kiln practically automatic and discharges continuously, producing the minimum of overburned or underburned lime.

The kiln is furnished in two sizes; 5 ton and 10 ton daily capacity.

Lower Power requirement, high thermal efficiency, high quality production.



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KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

2 PARK AVENUE — ***Complete line of equipment for lime and cement industry*** — **NEW YORK, N. Y.**

JUNE, 1943

The CONCRETE MANUFACTURER

A Special Section of ...

STEARNS

MANUFACTURING CO. - ADRIAN, MICH.

GENE OLSEN, PRESIDENT

Manufacturers of the famous Joltcrete vibration block ma chine, tamp type block and brick machines, batch mixers and skip loaders. Licensed under the basic Gelbman vibration patents.

The CONCRETE MANUFACTURER

JUNE, 1943

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Homes for War Workers Utilize Concrete Units

Biltmore Homes, a well-planned concrete-masonry housing project for war workers in Las Vegas, Nevada, is outstanding for the results obtained under wartime conditions with noncritical materials. It is also notable for the speed with which it was built, its relatively low cost and freedom from the hazard of fire. The project, financed under FHA Title VI, includes 96 individual two-bedroom houses and a 110-room hotel.

When the 1940 census was taken, Clark County, Nevada, had a population of approximately 13,000. When sugar rationing went into effect about a year ago, 45,000 cards were issued. War industrial plants were largely responsible for this rapid growth, a large part of which is expected to be permanent due to the type of industries.

The city of Las Vegas in Clark County is installing a new sewer system to accommodate 30,000 people, to take the place of the present 5,000-capacity system.

The carefully-planned Biltmore Homes community is among several developments built to remain a permanent part of the residential development of Las Vegas.

Walls and partitions of all the Biltmore Homes are built of hollow concrete-masonry units with concrete floors on grade, the floors being warmly pigmented with colors mixed integrally with the cement finish topping. Exterior wall surfaces are treated with a Portland cement base paint in various shades. Interior walls are finished with casein and oil paint.

The architect of Biltmore Homes did more than display a genius for economizing on critical materials. He gave the people who bought or rented a house in Biltmore Homes, attractive appearance and livability, things which are not on the critical list even though much so-called war housing has been produced on a stark "take what you can get" basis.

Biltmore Homes are comfortable and restful, pleasant places in which to relax after hard work. The streets of Biltmore Homes are not laid out gridiron fashion but are gently curved into interesting vistas. Nor do the houses exactly follow the curve of the streets. They are placed at varying angles on ample lots, offering an interesting example of modern plot planning.

Orville Bell and A. E. Tiffany, architect and general contractor, respectively, have displayed an awareness of the need for conserving critical materials in their practical application of concrete products. No less worthy of comment is the effect of charm they have achieved with a repetitive plan arrangement, unnoticeable because of ingenious, yet simple variations of exterior design.

Besides Architect Bell and Contractor Tiffany, co-owners of the tract on which Biltmore Homes was built, others who played a part in making the project a success include: A. P. Maynard, clerk of the works; W. S. Ford, subcontractor on the 96 individual houses; W. C. McCudden, subcontractor for the 110-room hotel; and the Paddock Engineering Company, which built the hotel's concrete swimming pool.

The concrete-masonry units for both the hotel and the houses were made by Southern Nevada Industries, Inc. A description of this plant appeared in the January, 1943 issue.

Plant of Southern Nevada Industries, Inc., at Las Vegas.

Ready-Mixed Concrete Plays Its Part in Henry Kaiser's War-Time Ventures

another ON THE SPOT report

The manifold activities of Henry J. Kaiser and his associates in furthering our war effort by building ships and by producing iron, magnesium, and other vital products are well known to the average citizen, as are also his achievements as a builder of dams, but some of the other activities on which his organization cut its teeth are less widely known. His gravel and cement producing operations have been described in these pages over a period of years but little has been published in the trade press on the ready-mixed-concrete plants which use a large percentage of the aggregates and cement produced. These operations have also contributed in large measure to the building program which has been the background of our conversion to a war economy.

A brief glance back into the sand-and-gravel production history of the Henry J. Kaiser Company, formerly known as the Kaiser Paving Company, is necessary to make clear his reasons for entering the ready-mixed-concrete field. A sand-and-gravel plant had been operated since 1924 in the Livermore Valley, which has long been the chief source of aggregate supply for the San Francisco Bay area. This plant was replaced in 1931 by what is still one of the largest, and surely one of the most efficient and flexible sand-and-gravel plants in existence. An article on this plant in the May 9, 1932, issue of PIT AND QUARRY should make this apparent to anyone. At that time the Radum plant, as it is known, had a capacity of 600 tons per hour and since that time both its capacity and the variety of its products have been increased.

The Kaiser plant supplied concrete for a naval-supply depot. The aggregate conveyor from the track hopper is at left.

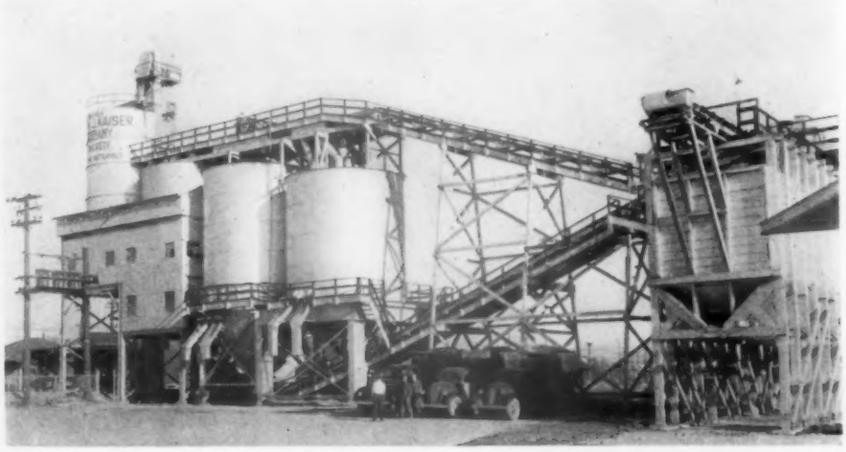
The company had for some years supplied aggregates from this location to dealers and ready-mixed-con-

By W. E. TRAUFFER

crete manufacturers in the bay area but, with the completion of the new Radum plant, more attention was paid to this market. Two concrete-distributing plants were built in Oakland and an aggregate storage and handling plant was built in San Francisco. The latter served the new central-mixed concrete plant of the Readymix Concrete Company which was then one of the outstanding plants in this field and which still ranks among the best (see PIT AND QUARRY, January 13, 1932). The aggregate-handling department was the property of the Kaiser interests, which supplied aggregates to the concrete company on a long-term contract. Many similar arrangements since made with other producers have given the company an important outlet for its aggregates, and later for its cement, in this area.

Early in 1938 the company put in operation in Oakland a wholesale aggregate-distributing and concrete-producing plant from which dealers distributed aggregates and concrete in their own trucks and truck-mixers. It is located at 500 Fifth Avenue within a short distance of the principal manufacturing sections, the docks, and the downtown district of Oakland. The only direct retail deliveries made by the company from this plant have been government orders too large for any of the dealers to handle during the peak of the war construction program.

This plant, which will be described in some detail in this article, has an hourly capacity of 150 cubic yards of wet-mix concrete or 200 cubic yards of dry-batched aggregates. It can load out single or blended sizes of aggregates, and can batch into truck-mixers either the dry ingredients, shrink-mixed concrete, or plant-mixed concrete. This plant is an outstanding operation of its kind with many interesting features of design and operation. With its yard and office it presents an attractive appearance which its prominent location makes an ex-



The Oakland plant. Cement bins at extreme left. Additional aggregate bins at right.

This plant supplied 70,000 cubic yards of concrete for a shipyard

cellent advertisement for the company's products. Robert S. Barneyback, who is in charge of all the company's ready-mixed-concrete operations in the bay area, makes his headquarters in this office which is built of concrete and glass and concrete blocks.

The next step in the expansion of the company's ready-mixed-concrete operations was the erection in 1939 of a concrete-batching plant in Alameda. This plant is owned by the company and was the first to be built and operated without any dealer connections. It was originally intended to be a temporary plant to supply about 150,000 cubic yards of concrete for a naval air station. Additional work in that area made it advisable to keep this plant in operation and it has produced more than 300,000 cubic yards of concrete for important projects.

Other temporary plants have also been operated by the company in the bay area and in other parts of California to supply concrete for shipyards, army cantonments and other vital work. Two such plants, operated during 1942 are described in this article.

The sand and gravel used as aggregates in the Oakland plant are received by railway from the company's plant at Radum. They are discharged from the cars into a 12- by 22-foot steel hopper which is wide enough so that either hopper cars or side-dump gondola cars can discharge into it without rehandling. A 36-inch by 192-foot inclined belt-conveyor carries these materials under the concrete plant to a transfer point where they can be discharged either on a conveyor running to the top of the plant or on a 35-foot shuttle belt-conveyor over six 100-ton truck-loading bins. These bins are used chiefly for loading out a dry proportioned concrete mixture usually consisting of 40 per cent. sand, 40 per cent. ¼- to ¾-inch gravel, and 20 per cent. ¾- to 1¼-inch gravel. Variations of this mixture are also stocked on occasions and one or more of the bins is used for plaster sand. Shipments from these bins are weighed on a Fairbanks truck scale at the plant office.

The 36-inch by 150-foot inclined belt-conveyor running to the top of the plant is horizontal over the tops of the plant storage bins or tanks. A Bodinson traveling tripper controls the discharge of this material into two 750-ton 4-compartment circular steel storage tanks. These tanks are equipped with side gates and chutes for direct truck loading and calibrated air-operated gates for discharging any desired blend on the main conveyor to the aforementioned truck-loading bins by way of the shuttle conveyor. The first of the two tanks has a conical bottom and its arc gates discharge its contents into a conical collecting hopper over the main belt-conveyor. The second tank is lower but of greater diameter and has a flat bottom with sliding gates discharging direct through chutes on this conveyor.

The tripper on the second belt-conveyor also controls the discharge of the aggregates into a third cylindrical steel tank which forms the ready-mixed-concrete storage. This tank has 8 radial compartments and a total capacity of 180 tons.

The bulk cement used in this plant is received in box cars from which it is transferred by a Link-Belt power scraper to a small hopper. A 16-inch by 10-foot screw-conveyor feeds the cement to a 7- by 14-inch inclosed chain bucket-elevator. This feeds a 16-inch screw-conveyor with three bottom gate openings through which the cement is discharged into the three compartments of the 1,860-barrel cylindrical steel cement-storage silo or tank.

The cement is discharged from these compartments through Link-Belt rotary valves into a 12-inch by 25-foot inclined screw-conveyor which discharges it into the cement-weighing batcher. A valve and chute at the discharge end of this

This view of the Alameda plant shows method of unloading and distributing cement and aggregates.

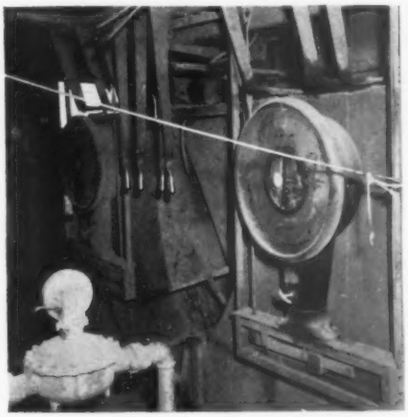
conveyor allow the cement in the conveyor to be returned to the elevator when a change of brands is required. The Johnson cement batcher has a capacity of 5 barrels and is equipped with a Kron dial scale.

The aggregates are discharged through 8 air-operated arc gates into

Another view of the Alameda plant. Aggregate conveyor from track hopper in foreground.

the 4-cubic yard Johnson aggregate-weighing batcher which also has a Kron dial scale.

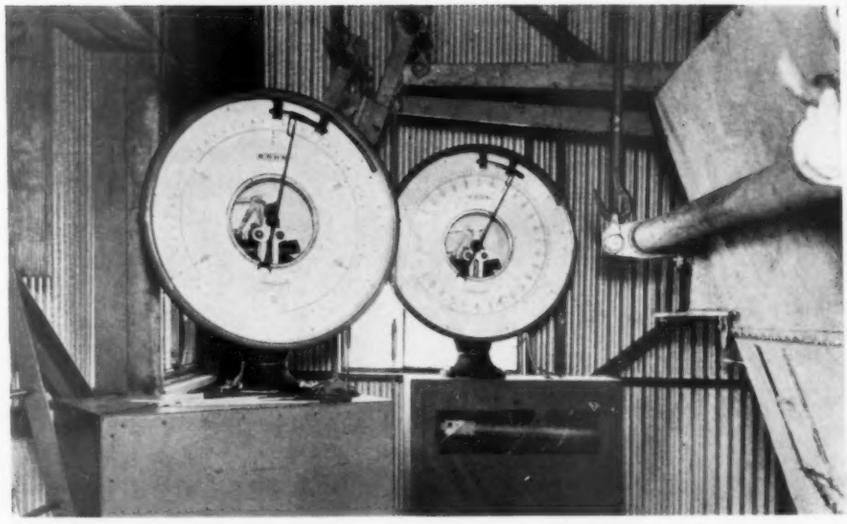
The cement and aggregates are discharged from their respective batchers through air-operated gates into a 2-way chute. This can be used for direct loading into truck-mixers or it can discharge these materials into a 2-cubic yard Chain Belt Rex drum-type plant mixer. The concrete is discharged from this mixer into a 4-cubic yard hopper which acts as a surge storage to even out any slight delays in the arrival of truck-mixers.



Weigh-batchers with separate scales for aggregates and cement in the shipyard plant.

The mixing water for the plant mixer and for the trucks, as the case may be, is obtained from the city mains through an Emco Nordstrom valve and a Neptune water meter. The air for the gates and for agitation of the cement in the bins is provided by Gardner-Denver and Sullivan compressors.

The operator of this plant usually controls all its operations through electric switches and air valves but an automatic control board is installed and can be used if needed on special jobs.



Dial scales in the Oakland plant with aggregate-weighing batcher at right.

The main part of this plant is built of concrete and steel but the truck-loading bin and conveyor supports are of wood construction. The use of Timber Engineering Company design and its connectors made it possible to build these structures of much lighter lumber than would otherwise have been possible and without sacrificing strength.

Bodinson screw - conveyors and bucket-elevators and Chain Belt Rex conveyor idlers and pulleys are used in this plant. Gates V-belt and Link-Belt chain drives are used.

At the Alameda plant the aggregates are received by railway and are discharged into a track hopper. A 24-inch by 40-foot inclined belt-conveyor feeds them to the 24-inch by 160-foot main conveyor running to the top of the plant. This discharges on a 24-inch by 30-foot cross feeder belt-conveyor which is reversible and discharges from each end through split chutes into two of the four compartments of the Johnson 350-ton aggregate bin.

The cement is transferred from box cars to a hopper by a Link-Belt power scraper. A short inclined screw - conveyor feeds a second screw-conveyor running to a 60-foot inclosed bucket-elevator. This discharges the cement through a spout to a distributing screw - conveyor from which it is discharged into a bin having three 70-barrel compartments. Three different brands of cement are usually stored. Another spout from this elevator feeds a ground-level steel reserve-storage silo which has three 500-barrel compartments. The cement is reclaimed from this silo by the second screw-conveyor described which runs under it.

This plant has a fully-automatic Johnson batcher system with push-button control of both the air- and electrically-operated equipment. A 2-minute batching cycle is used on 4-cubic yard batches and the plant capacity then is over 100 cubic yards per hour.

Under each of the three cement compartments is an automatically-controlled - screw - conveyor which feeds the cement to the 10-barrel internal cement compartment of the 4-cubic yard Johnson automatic weighing batcher. The aggregates are discharged into this batcher through air-operated arc gates. Separate Kron dial scales are used to weigh the cement and the aggregates.

The mixing water for the truck-mixers is measured by a Neptune meter with a Nordstrom quick-shut-off valve.

Crane unloading aggregates to stock pile from which it is conveyed to a Kaiser batching plant at a shipyard.

Chain Belt Rex Stearns conveyor idlers and pulleys and Goodyear conveyor belts are used.

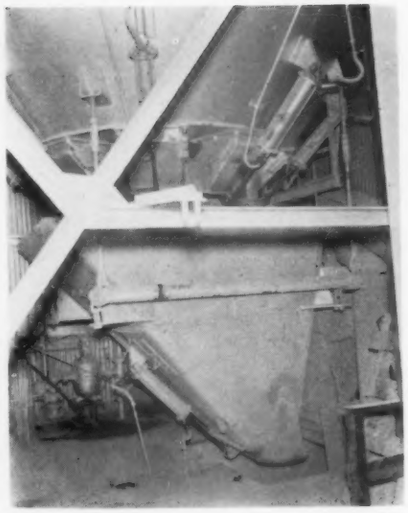
One temporary plant went into operation in April, 1942, to supply 70,000 cubic yards of concrete for a shipyard and 60,000 cubic yards for other work in that area. A Northwest 2-cubic yard crane unloaded the aggregates to a 3,000-ton stock pile over a tunnel from which it was conveyed to the 150-ton capacity, 4-compartment plant bins. Bulk cement was received in cars and was loaded by two Link-Belt power scrapers. Each served a separate hopper from which Noble

Water meter, batching scale and water tank in the Alameda plant.

screw-conveyors and elevators fed the cement into a common 500-barrel plant storage tank. This dual cement-handling system was necessary in order to insure sufficient capacity for the 150-cubic yard per hour output of the plant.

The interesting feature of this plant was the Noble automatic batching system. A 2-cubic yard fully-automatic batcher was used. This had a central inclosed cement compartment with its own discharge gate so that the cement did not come in contact with the aggregates un-

Aggregate batcher at Alameda plant.



Aggregate batcher at Oakland plant.

til they were discharged into the truck-mixers.

The operator first set weights on the beams of the batcher scale at the desired setting for each of the aggregates and the cement. Then a control lever was thrown to start the automatic sequence which weighed out the cement and each of the aggregates in order. Each air-operated aggregate gate had an automatic dribble arrangement which at a certain point shut it to half opening for final feeding and accurate weighing. The 12-inch screw-conveyor which fed cement to the batcher had automatic air-operated louvregates with machined fit to prevent leakage. The automatic control opened these gates, started the screw-conveyor and then reversed these operations at the proper point. When the sequence was completed, a signal light would notify the operator that the batch was completed. The batch was then dumped through manual controls. This plant was operated two shifts daily.

Another plant was erected in September, 1941 to supply concrete for a naval-supply depot in the bay area. A complete new C. S. Johnson central-batching plant with a capacity of 100 cubic yards per hour was installed.

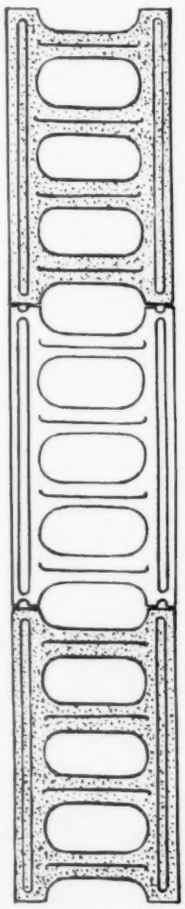
This plant has a 4-compartment, 400-ton aggregates bin and a 300-barrel cement bin. Aggregates are received by railway and a short belt-conveyor feeds them to the main conveyor running to the plant bins. A power scraper unloads the cement from cars into a screw-conveyor, and a bucket-elevator feed it to storage. The 4-cubic yard batcher is fed through manually-operated gates and is equipped with separate Kron dial scales for the cement and aggregates. The water is measured by an automatic meter.

Because of the nature of its business it had never been necessary for the company to own a very large fleet of truck-mixers, but when it began operating temporary plants some were purchased. In 1939 the fleet consisted of 15 Chain Belt Rex 3½- to 4-cubic yard mixers mounted on Ford chassis. Since then 20 additional mixers have been bought and it has been necessary to rent others from dealers. All the new truck-mixers are also mounted on Ford chassis. Four are Smith mixers and the others are of Chain Belt manufacture.

R. Marshall, Detroit Agency Head, Dies

R. Marshall, advertising agent with offices in Detroit and well known to concrete-products men, passed away suddenly on May 11. He handled, among other accounts, the advertising and publicity for the Stearns Manufacturing Company.

Funeral services were held May 13 in Detroit and burial took place at Dowagiac, Michigan.



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Two Batching Plants, 40 Truck-Mixers Supply Concrete for Huge War Plant

another P and Q exclusive

ONE of the largest of all of the new war plants which have been built recently to speed up victory for the Allied cause is the Dodge Chicago Plant, Division of Chrysler Corporation, which will manufacture engines for our latest types of bombing planes. Records were set in building this plant for which ground was broken June 4, 1942. In October a force of 16,460 people was working day and night on its construction.

Nearly all of the 435,000 cubic yards of concrete used on this project was batched in two central-batching plants located on the project and mixed in transit by a fleet of truck

The inclined belt-conveyor which carried aggregates to Plant Number 1.

mixers. The efficiency and dependability of this system in supplying to the construction forces a steady flow of scientifically-designed and produced concrete under all conditions was largely responsible for the remarkable construction record achieved. The placing of concrete was begun in August, 1942 and the last was poured on April 15, 1943. Prior to the erection of the batching plants a small amount of concrete was placed by pavers.

The Dodge Chicago Plant consists of 19 structures all except two of which were built of reinforced concrete. The largest structure, the machining and assembly building, covers a ground area of some 80 acres which is said to be the record for any type of building.

View of Plant Number 1 showing aggregate conveyor to bins. Also shown are the cement storage bins and boiler house.

All available types of aggregates were used in the concrete. The coarse aggregates consisted chiefly of crushed stone and gravel, but slag was used in the foundations of some of the furnaces. The maximum size used was 1½ inches except in the more heavily-reinforced roof construction where the maximum size was 1 inch. In order to speed up construction high-early-strength cement was used for a large portion of the project but no admixtures were used.

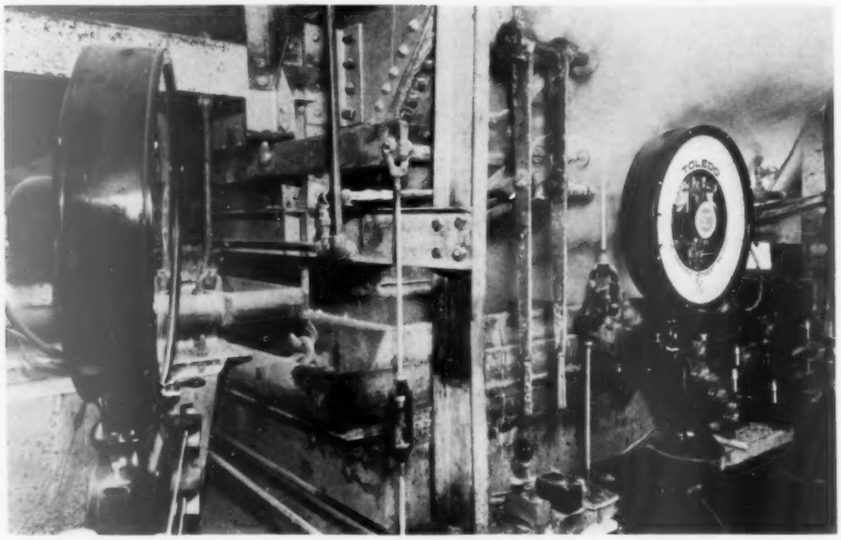
During the cold winter weather when most of the concrete was poured the mixing water and aggregates were both heated by means of steam jets which made it possible to deliver 80-degree concrete regard-

View of Plant Number 2 with cranes feeding aggregates to bin at left. Cement elevators and bins are at right.

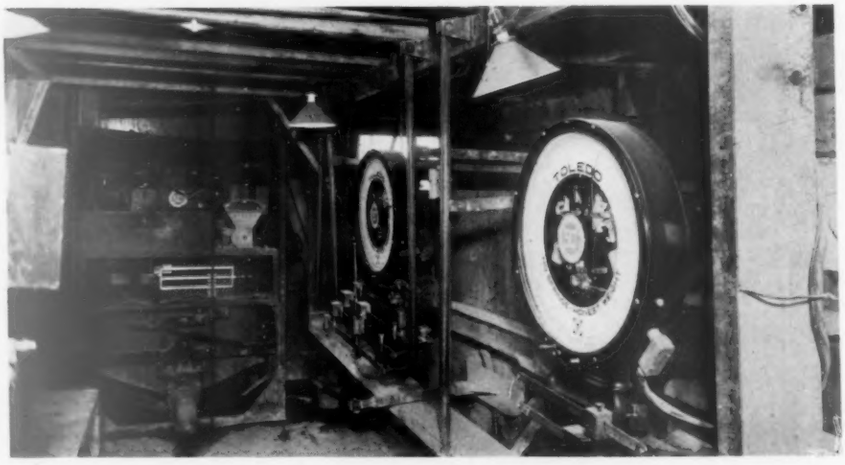
This view of Plant Number 1 shows the aggregate stock pile with reclaiming conveyor and main plant conveyor at left.

less of weather conditions. A system for extracting excess water from the concrete used in the roof construction also helped. All of these factors combined to make it possible to strip forms within an average of 72 hours after the concrete was poured.

Late in the fall of 1942 a stockpile of aggregates was built up to a size sufficient for three months of operation in order to insure against any delays in the construction due to the unavailability of aggregates because of weather conditions or for any other reasons. This proved to be a wise precaution because at the peak of construction the daily production of concrete reached a maximum of 4,800 cubic yards. The highest monthly output was 94,000 cubic yards.



Two batcher scales of the scientific system of concrete design and proportioning used in Plant Number 2.



Scales and batchers of the scientific concrete system used in Plant Number 1. The water weighing batcher is at left.

The two batching plants were located as near as possible to the center of gravity of the concrete to be poured and on opposite sides of a railroad loop serving the entire project. This loop consisted of five tracks and had a capacity of 200 cars of material daily. All of the cement and most of the aggregates was delivered to the plants by rail.

Plant Number 1 had two track hoppers and a truck hopper feeding on a 36-inch by 200-foot belt-conveyor to the plant bins. There was also an auxiliary stockpile system of 4,000 cubic yards capacity from which the material was recovered by a conveyor in a 160-foot concrete tunnel to the plant conveyor. During the last stages of construction part of the tracks were removed and the aggregates were delivered by trucks to all three hoppers.

The cement was unloaded from special hopper bottom cars to a screw conveyor and bucket elevator feeding the 2,000-barrel silo. This had two compartments, one for standard and the other for high-early-strength cement.

At plant Number 2 the aggregates were dumped from cars on a trestle to a pile from which they were rehandled by two cranes into the plant bins.

The cement was received in hopper-bottom cars and delivered into the 2,000-barrel main silo and the 3,000-barrel auxiliary silo by screw conveyors and bucket elevators. This plant operated entirely on high-early-strength cement.

In both plants the batching was done by separate weighing batchers for the aggregates, cement and water.

The truck mixer fleet consisted of 40 units, all of the high-discharge type with 4-cubic yard capacity. Plant Number 1 at all times furnished concrete to the trucks faster than they could take it away and is estimated to have produced as much concrete in six months as a comparable commercial plant would in four years. During one hour it produced 57 loads or 228 cubic yards of concrete and averaged 200 cubic yards per hour for longer periods. Plant Number 2 did two years' commercial work in six months and produced as high as 50 loads or 200 cubic yards of concrete in one hour. The longest truck-mixer round-trip haul was approximately two miles.

Inspectors supervised the batching of the materials and concrete test cylinders were made daily in addition to the other routine tests.

Rebuild Sand Plant in Arkansas After Fire

Work has been started on rebuilding the Silica Sand Products Company plant at Guion, Arkansas, which was destroyed by fire several months ago. Much of the new structure will be of concrete instead of timber. Modern machinery will be installed, Mrs. Mertie Duncan, manager of the plant, reports. The plant is expected to be ready for operation within the next week of so.

Mica Operators Oppose Government Subsidy

The Truman committee of the Senate opened an investigation on May 2 into complaints of mica-mine operators in New England and the South that production was being hindered by a government-subsidized agency controlling purchases of the essential war mineral.

Representatives of the industry had a conference with Senator Truman, chairman of the committee investigating national defense.

Senator Truman assigned investigators at once, and told the mica operators that a hearing would be held within 30 days. There are approximately 500 mica mines available for war production, spokesmen said.

● Gets "E" Award

The Stearns Manufacturing Company, Adrian, Michigan, well-known maker of Joltcrete machines and other concrete-products plant equipment was honored on May 1 by receiving both the Army-Navy "E" award for production excellence and the United States Treasury "bull's-eye" flag for participation in the war-bond payroll deduction plan. The awards were accepted by Gene Olsen, president, on behalf of the employees. Walter Manhardt, Milwaukee, president of the National Concrete Masonry Association was a guest of honor at the presentation.

Walter Manhardt, Gene Olsen and E. W. Dienhart pose before the "E" flag.

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Used on Dodge Brothers Chicago Project (Described in this issue)

Now used in many progressive ready-mixed plants.

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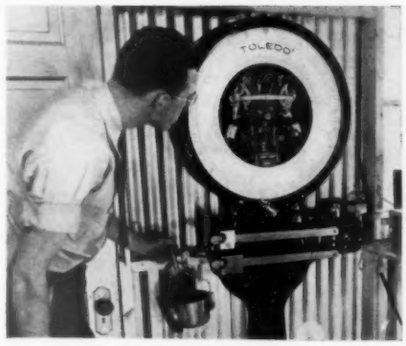
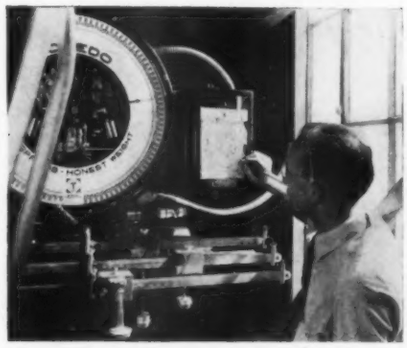


The [SC]² Moisture Meter. The only unit capable of determining moisture content in less than 1 minute.



The [SC]² Compensator which compensates for the moisture content in every ingredient and graphically records its every operation.

(SC)² Precision Concrete Control definitely improves concrete quality and definitely reduces cost. Write for our booklet "Profits in Concrete" and let us show what (SC)² can do in your plant.

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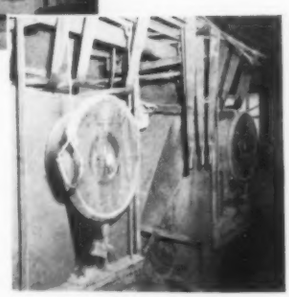
General view of the Kaiser plant, located in the San Francisco Bay area.



KRON Dial Scales attached to cement batcher, for weighing cement and aggregates.

KRON SCALES are used by the Henry J. Kaiser Company, and they are a factor in the amazing production records of the huge plant recently erected to supply concrete for a naval-supply depot.

This installation has a capacity of 100 cubic yards of concrete per hour, and is equipped with two separate KRON Dial Scales for measuring the cement and aggregates.

All KRON scale heads are sealed against dust infiltration.

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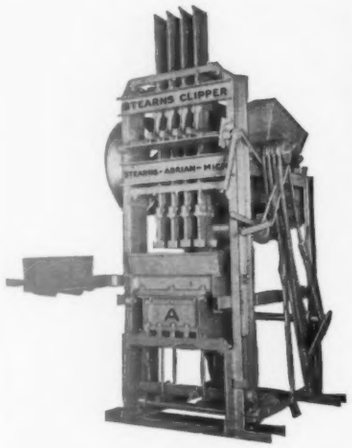

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Stepanian Becomes NRMCA President

Stephen Stepanian

Stephen Stepanian of the Marble Cliff Quarries Company, and Arrow Sand & Gravel Company, of Columbus, Ohio, was elected president of National Ready Mixed Concrete Association at a special meeting held at the New Yorker Hotel in New York recently by the directors of the National Ready Mixed Concrete Association.

Mr. Stepanian was the inventor of the truck-mixer which mixes concrete in transit, having invented the machine in April, 1916. He has been a member of the association board for years and served as its treasurer and vice-president. He is also active in the National Sand & Gravel Association, the Ohio Ready Mixed Concrete Association and the Ohio Sand & Gravel Association.

In heading the association, Mr. Stepanian succeeds H. F. G. Pelsue, who recently became general manager of the Metropolitan Sand & Gravel Corporation of New York City. Mr. Pelsue resigned, since his new position is in the sand-and-gravel field entirely. He formerly was vice-president of Graham Brothers, Inc., of Los Angeles.

Truck-Mixer Goes Out of Control, Crashes

A truck-mixer owned by the Makins Sand & Gravel Company of Oklahoma City damaged several parked vehicles recently when it broke in half and went out of control.

The driver, Donald Phillips, suffered only slight injuries and was released from a hospital after emergency treatment.

Space limitations in this issue make it necessary to omit the third and concluding installment of the series "Tips on Maintenance for Ready-Mix Operators" by Arthur A. Levison. It will be published in a later issue.

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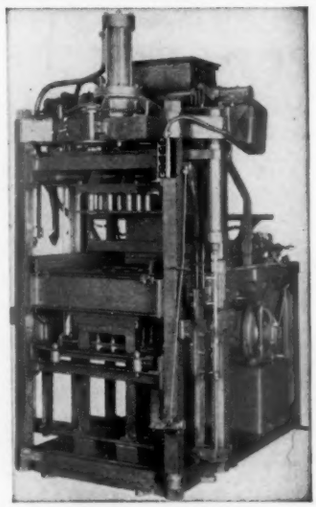

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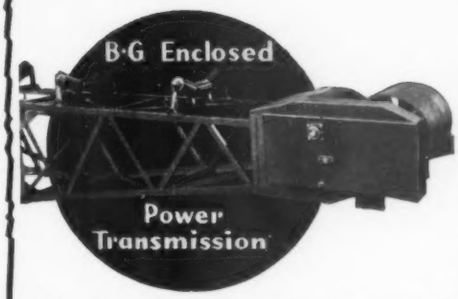
Cuyahoga Falls, Ohio

Via Barber-Greenes



B-G Standardized Units include 24" and 42" deep Steel Truss, Enclosed Power Transmission, Head End Drives, Wrap Drives, Various Types of Take-Ups, A Frames, Walkways, etc. All unit parts and assemblies are accurately rated, giving the individuality of a "tailor made" conveyor plus the many additional advantages of standardization.

BELT conveyors offer by far the cheapest means of handling bulk materials. Barber-Greenes offer many additional advantages.

Having Pre-Engineered Standardized Unit Parts and Assemblies, the B-G Sales Engineer is able to make a quicker, more accurate price estimate, the Engineering Department is able to make a quicker, more practical layout.

This B-G Standardization lets us carry the parts in stock for practically any conveyor requirement — giving prompt shipment.

Erection is tremendously speeded up and simplified, and perfect alignment is assured.

B-G Standardization allows the addition of standard accessories later, and Barber-Greene Standardized Sectional Construction permits unequalled change of set-up to meet changing conditions.

B-G Carriers are recognized for their excellent design and performance records. They are available with plain, ball, or roller bearings. If you are replacing carriers or erecting your own conveyor, investigate B-G Carriers.

Solving your handling problems is our business.

Standardized Material-Handling Machines

BARBER GREENE

Aurora, Illinois

The CONCRETE MANUFACTURER

TO HIT 'EM H-A-R-D-E-R

THE year 1943 promises to be the grimmest, hardest year this country has ever faced. Every effort, and every dollar of national income not absolutely needed for existence, should go into war work and War Bonds.

In the Pay Roll Savings Plan, America finds a potent weapon for the winning of the war—and one of the soundest guarantees of the preservation of the American way of life!

Today about 30,000,000 wage earners, in 175,000 plants, are buying War Bonds at the rate of nearly half a billion dollars a month. *Great as this sum is, it is not enough!* For the more dollars made available now, the fewer the lives laid down on the bloody roads to Berlin and Tokio!

You've undoubtedly got a Pay Roll Savings Plan in your own plant. But how long is it since you last checked up on its progress? *If it now shows only about 10% of the gross payroll going into War Bonds, it needs jacking up!*

This is a *continuing* effort—and it needs *continual* attention and *continual* stimulation to get fullest results.

You can well afford to give this matter your close personal attention! The actual case histories of thousands of plants prove that the successful working out of a Pay Roll Savings Plan gives labor and management a common interest that almost inevitably results in better mutual understanding and better labor relations.

Minor misunderstandings and wage disputes become fewer. Production usually increases, and company spirit soars. And it goes without saying that workers with substantial savings are usually far more satisfied and more dependable.

And one thing more, these War Bonds are not only going to help win the war, they are also going to do much to close the dangerous inflationary gap, and help prevent post-war depression. The time and effort *you* now put in in selling War Bonds and teaching your workers to save, rather than to spend, will be richly repaid many times over—now and when the war is won.

★ ★ ★

You've done your bit Now do your best!

This space is a contribution to victory today and sound business tomorrow by PIT and QUARRY

Ready for Action! ★

CONSERCO FLEET
of Concrete Rental Trucks

★ **Rely on Rented CONSERCO CONVOYS for maximum concrete production** ★

★ Mixer and truck complete, 3, 4 or 5 yds.

★ Maintenance of truck and mixer

The CONSERCO Complete Ready Mix Concrete Truck Rental Service enables producers to meet all competition without additional capital investment.

★ Experienced Driver

★ Truck delivered to the job

★ Gasoline

★ Insurance

★ Oil

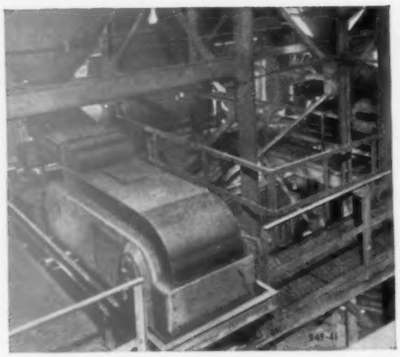
NATIONWIDE SERVICE
OPERATING 61 UNITS

Take advantage now of the CONSERCO plan. Write for rates.

CONSERCO, INC., 1600 South Capitol St., Washington, D. C.

Phone: ATlantic 9055 **Long Distance 1200**

The CONCRETE MANUFACTURER



ACCURATE GRAVIMETRIC FEEDING

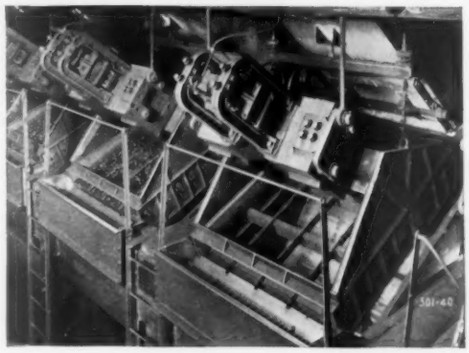
The Jeffrey-Traylor Waytrol is a precision unit for accurate feeding, batching, weighing and proportioning of all kinds of material. Can be remotely controlled and interlocked with power demand of the grinding unit or other processing equipment.

SEND FOR OUR NEW J-T CATALOG NO. 750-M

The Jeffrey Manufacturing Company

917-99 North Fourth Street, Columbus, Ohio

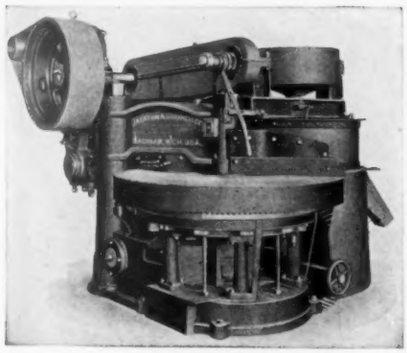
BALTIMORE, BIRMINGHAM, BOSTON, BUFFALO, CHICAGO, CINCINNATI, CLEVELAND, DENVER, DETROIT, HARLAN, HUNTINGTON, HOUSTON, MILWAUKEE, PITTSBURGH, PHILADELPHIA, NEW YORK, SCRANTON, SALT LAKE CITY, ST. LOUIS



SCREENING

Whether scalping, sizing, by-passing, rescreening, dedusting or washing . . . Jeffrey-Traylor screens will give maximum "through screen" capacity — the ultimate in control. Single or double deck styles. We'll be glad to analyze your problem.

An Unsurpassed Record of Operating Performance Is the Proud Boast of J&C Brick Machines



Unsurpassed is the word, for, despite the fact that some sixteen different improved models have been brought out in the past thirty years, many of the first machines made are still in daily productive service.

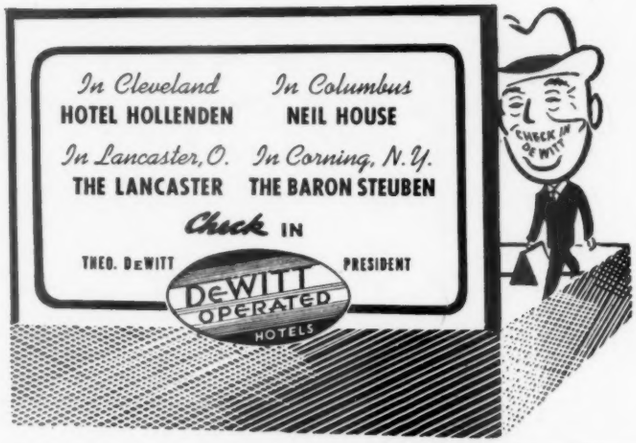
Sturdy, dependable, durably built to "take it" these machines are the backbone of permanently profitable brick business. Brick made plain or with frog, WITHOUT PALLETS.

It will pay you to investigate. What others promise, J&C machines deliver.

Write for Information

THE JACKSON & CHURCH CO.

Saginaw, Michigan



Complete Block Plant For Sale—with or without buildings.

Located in the suburbs of Philadelphia, Pa.

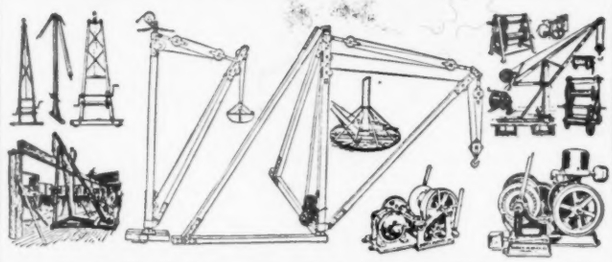
1—Stearns Joltcrete
1—Large Stearns Double Bar Tamper
1—Anchor Double Bar Tamper
Several Mold Boxes
All Kinds of Steel Pallets
1—30 cu. ft. Kelly Mixer
1—50 ft. Bucket Elevator
1—52 Ton Portable Steel Bin with Batcher & Scales
1—Cinder Crusher
1—25 ft. Belt Elevator

All equipment listed is as good as new.

Property located on Highway No. 30 at Strafford, Pa., 10 miles west of Philadelphia. Plot is 300 feet square with level yard and concrete runway. Main building, 48 feet by 70 feet. Five steam curing kilns, capacity 5000 blocks, 40 ft. by 60 ft. Large Garage, 30 ft. by 60 ft. Communicate with:

YORK BUILDING PRODUCTS COMPANY, INC.
1020 NORTH HARTLEY STREET — YORK, PA.
See Mr. Walter W. Sipe

COMPLETE LINE OF DERRICKS and WINCHES



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YOUR STORAGE PROBLEM!

Your operation may be vital enough to justify a preferred rating. If so, we can rush your bins up in a hurry.

Super-stave type . . . any capacity. 1943 catalog on request.

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Camden, Ohio

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Employed by U. S. A. in the WAR EFFORT

For Access Road and Air Base Construction

PORTABLE CRUSHERS

Proper Size Aggregates --- on the Job

Balanced, Non-Tipping. Expertly designed to meet your exact requirements in proper size aggregates—larger capacity and quick mobility to and from job.

Four Wheel Maintenance JAW CRUSHER with Power Unit

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On the job to help you in any way, NOW and for your Post War Plans. Blue Prints or Practical Suggestions sent —No obligation.

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Keep Your MULTIPLEX Equipment in Top-Operating Condition

More than 90 per cent of the operation of our plant is on War Production. Yet we are ready to furnish necessary repairs and replacements to any user of MULTIPLEX Concrete Products Plant Equipment as promptly as priorities furnished with the order permit.

Write or Wire Us If You Need Our Assistance

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There Is a MULTIPLEX Machine for Every Products Plant Need

Multico Pneumatic Vibrator • Standard Tampers • Super Tampers • Power Strippers Flue Block Machines • Hand Strippers Hand Vibrators • Mixers • Block Cars Elevating Equipment • Molds • Pallets Forms • Complete Plant Installations.

Ask the Men Who Use MULTIPLEX

MULTIPLEX CONCRETE MACHINERY CO.
ELMORE • OHIO

WHY and HOW to Keep Your Jaeger Truck Mixers Rolling to Victory

In 2 years of war building, the ready-mix industry has made 10 years' progress in educating contractors to the advantages of mobile, flexible concrete delivery.

With the economic value of the truck mixer established, and raw materials abundantly available, operators face a bright future—*provided they can continue to maintain satisfactory service to concrete users with their present truck mixer fleets.*

YOUR JAEGERS WILL SEE YOU THROUGH

They're engineered for long life, low upkeep—self-cleaning drums without pockets or corners, simple and trouble-free water system, shock-proof 2-speed transmission, better mounting and weight distribution, highest type automotive construction thruout. As near as your telephone is a Jaeger distributor with complete stocks of repair parts. Jaeger traveling engineers are on call to help you with major problems.

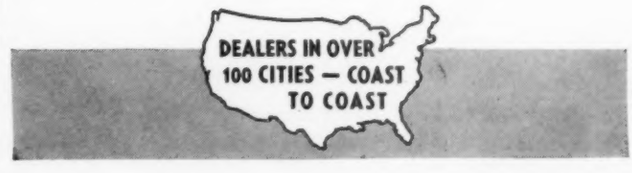
HOW TO GET LONGEST SERVICE FROM YOUR JAEGER TRUCK MIXERS:

Now that war regulations limit the building of new truck mixers, we recommend two maintenance measures:

1. Make every driver responsible for his unit. Send for Jaeger Instruction Manuals and insist on careful operation and daily cleaning and lubrication as specified.

2. ARRANGE WITH YOUR JAEGER DISTRIBUTOR FOR A REGULAR 30-DAY CHECK-UP ON EVERY MACHINE.

THE JAEGER MACHINE COMPANY
602 DUBLIN AVENUE, COLUMBUS, OHIO



A STAR OF THE *Mammoth* SHOW

BUTLER SPEEDS CONSTRUCTION OF WORLD'S LARGEST *Industrial* BUILDING

For the world's largest industrial building, concrete was needed — thousands of cubic yards of it—and it was needed **fast.** Vital aircraft plants cannot wait.

Only natural was the first step in supplying the large volumes of concrete required: the installation of Butler equipment. Leading producers everywhere know the record-shattering performance of these efficient plants.

First of the two plants furnished included a 250 cu. yd. bin for three aggregates and cement, a 300 cu. yd. cement storage bin, five yd. batchers with automatic water and cement weighing, belt conveyor, and a cement elevator capable of handling a carload an hour. Plant No. 2 was made up largely of second-hand units completely redesigned by Butler to function with modern efficiency.

That these plants did what was expected and more is history. Whatever the job, large or small, there is a Butler plant **engineered** to fit the conditions. Ask how Butler equipment can help **you** today.

Butler ready-mixed concrete plants, like this outstanding installation, can give you better service at lower cost.. Each plant, from conveyor to weighing batcher, is an **engineered design!**

BUTLER
BIN COMPANY
WAUKESHA, WISCONSIN

WILLIAMS *Buckets*

LONGER WEAR, LESS MAINTENANCE COST because of WELDED ROLLED STEEL CONSTRUCTION

- Williams Welded Design means greater strength and eliminates unprofitable "dead" weight.

MULTIPLE ROPE and POWER ARM TYPES • DRAGLINE • POWER WHEEL • DREDGING • STEEL MILL BUCKETS

⅜ to 16½ yd. capacities

Send for free bulletin covering types of buckets for your particular requirements. It shows details of design and many exclusive features that clearly prove why YOUR NEXT BUCKET SHOULD BE A WILLIAMS.

BUILT BY WELLMAN

THE WELLMAN ENGINEERING COMPANY
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PRODUCTION LIKE THIS...
Meets Schedules and Lowers Costs!

5000 TONS PER DAY ON A 7 MONTHS' CONTINUOUS RUN!

Every experienced operator knows that to produce 5000 tons of aggregate every 24 hours—and do it consistently, week after week, month after month—a plant must be perfectly balanced, ruggedly built,—and trouble free. DIAMOND Portable Plants are constantly turning in high-production, non-stop records like this, and have for years. There are mighty good reasons why they do!

There are NO BOTTLENECKS in a DIAMOND Plant

EVERY Unit — jaw crusher, roll crusher, vibrating screen, conveyor—is a PROVEN Unit. The exclusive DIAMOND "ROTOR-LIFT" assures maximum production of each unit and for the plant as a whole. For low-cost, high-output performance that meets or *beats* schedules — investigate DIAMOND. Made in many sizes and types. Ask for new bulletin D-43-G.

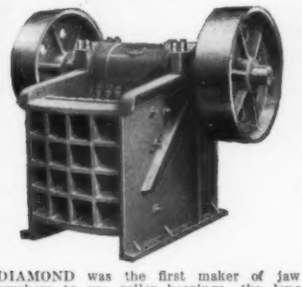
DIAMOND IRON WORKS, INC.
ESTABLISHED 1880
AND THE MAHR MANUFACTURING CO. DIVISION

1801 SECOND STREET N., MINNEAPOLIS, MINN.

Here Are the Facts:

A DIAMOND No. 95 Plant was used on a big Western ordnance job, producing 2" minus crushed gravel.
Started—May 12th.
Finished—November 6th.
Calendar time—179 days, 24 hours a day 7 days a week—total elapsed time—4,296 hours.
Scheduled operating time—3920 hours.
Actual operating time—3320 hours or **84% of Scheduled Time.**
Aggregate production—463,223 cubic yards, 119 cu. yds. per scheduled hour for entire period. 139 cu. yds. per actual operating hour.

JAW CRUSHERS



DIAMOND was the first maker of jaw crushers to use roller bearings, the long jaw and structural steel base. Greater tonnage per rated capacity. Handles hardest rock. 10 sizes for every primary crushing need.

BALANCED VIBRATORS

Accurately balanced—fast, positive separation **all over** screen. No choke—fast delivery. 11 sizes—up to 4 decks.

WHY

you should specify

SIMPLICITY SCREENS

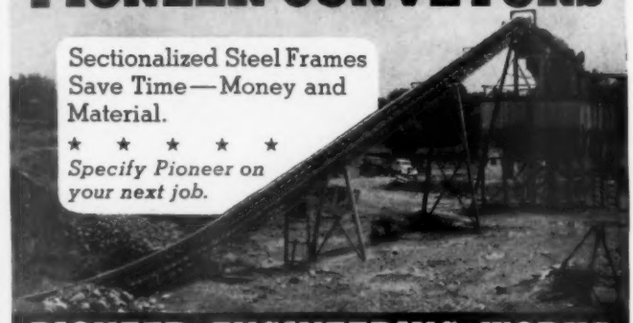
Years of operating experience in many hundreds of plants and in many industries have been utilized to produce a screen which contains all these important features: Large Capacity, Positive Action, Durable Construction, Perfect Balance, Freedom from Blinding and Rubber Cushioned Power.

Users everywhere acclaim SIMPLICITY as the truly superior screen.

Our engineers will gladly study your particular screening problem and make a definite recommendation for its most practical solution.

Simplicity Engineering Co.
DURAND . . . . . MICHIGAN

PIONEER CONVEYORS



Sectionalized Steel Frames Save Time—Money and Material.

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Specify Pioneer on your next job.

PIONEER ENGINEERING WORKS
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Manufacturers of Quarry, Gravel Pit and Mining Machinery

ROUND
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PERFORATED PLATE
of every description
for maximum productiveness from your vibrating screens.
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for Making 1¼", ¾" or Agricultural Limestone...

THE WILLIAMS "SLUGGER" CRUSHER AND PULVERIZER

● Handles Large Stone or Screen Rejects ●

Rows of heavy, free swinging, fast revolving hammers, crush the material by impact until of proper size to pass through the grates. By reducing large rock to 1¼", ¾" or agricultural size in one operation, the "Slugger" has enabled operators to produce these sizes at a very low cost per ton and with small investment. Seven sizes—6 to 150 tons hourly capacity.

The Williams Patent Crusher and Pulverizer Co.
802 St. Louis Ave. St. Louis, Mo.

OLDEST AND LARGEST BUILDERS OF HAMMERMILLS IN THE WORLD
WILLIAMS
PATENT CRUSHERS GRINDERS SHREDDERS

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DOUBLES
THE LIFE OF CONVEYOR BELTS!

The most profitable investment in conveyor equipment! A pulley that saves at least 50% in conveyor belts! This exclusive Sprout-Waldron development prevents material from coming between the face of the pulley and the belt . . . eliminates the heavy friction wear and punching of holes. Interchangeable with standard pulleys. *Write for list of sizes available.*

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ELEVATORS, CONVEYORS, POWER TRANSMISSION EQUIPMENT

ARMSTRONG-BRAY
STEELGRIP
FLEXIBLE BELT LACING

Prompt Delivery. Best all around conveyor and power belt lacing because it can be applied with a hammer. Comes in handy packages or long lengths for conveyor belts. It compresses belt ends, prevents fraying. Comes with 2-piece hinged rocker pins. Write for Catalog showing the most complete line of belt lacing made.

Also Mfg. Wiregrip Hooks and Lacers.

ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
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Here is one bird who breaks down and admits that sand and gravel producers who haven't installed EAGLE equipment "just ain't seen *nothin'* yet" for all round performance.

Finely designed and built machines that operate at an extremely low cost over a long service life . . . record production figures . . . high quality material meeting all specifications . . . are features of EAGLE Washers and Dewaterers that command the attention of discerning operators everywhere.

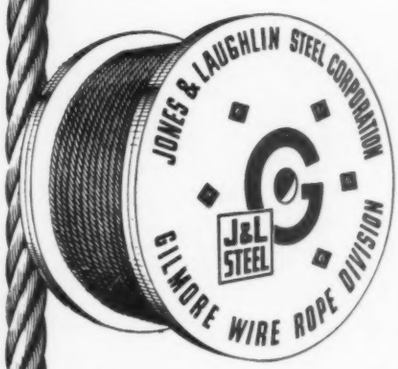
ONCE YOU SEE AN "EAGLE" WORKING, you will want complete information about the famous Eagle line, which includes Eagle Grinders, Eagle Double Roll Crushers, Eagle Dry and Wet Pans, "Swintek" Screen Nozzle Ladders, Olsen Self-Dumping Cages, Specialized Mining Equipment.

Write for our new Bulletin No. 41

EAGLE IRON WORKS
Des Moines, Iowa

Wire Rope

keeps fighting tools moving to the fighting fronts



Keep your wire rope in fighting trim. Every length now in use must last longer than ever before. Use right size, right lay, right construction for the job. Install carefully and properly. Inspect regularly, check lubrication frequently, avoid impact and shock loads. Use facilities and services of your regular source of supply to help make your wire rope carry through to victory.

JONES & LAUGHLIN STEEL CORPORATION
WIRE ROPE DIVISION
PITTSBURGH AND MUNCY, PENNSYLVANIA

EXTRA SERVICE
FROM YOUR EQUIPMENT

DO you find equipment wearing out in areas subject to great abrasion or corrosion—while the rest of the equipment is still in good shape? You can prevent this premature breaking-down of equipment—save time, money and metal — by depositing a tough, wear-resistant surface over such areas with Bergstrom Hard Surfacing Electrodes.

These electrodes are easy to use. Applied in any position. AC or DC, with freedom from porosity. Freedom from scale eliminates brushing and chipping.

BERGSTROM *Free Flowing*
HARD SURFACING ELECTRODES

WRITE FOR FREE INFORMATION

We will send you full information, including an outline of the purposes of each of the six types of electrodes available.

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USS STEELS SERVICE

UNITED STATES STEEL SUPPLY COMPANY
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UNITED STATES STEEL

DENVER HYDRO-CLASSIFIER

The Denver Hydroclassifier is designed for fine sizing and de-sliming problems where it is essential to reduce materials to sizes minus 200 mesh to 10 microns. Enclosed integral lift vertical worm gear drive makes it easy to raise rakes. The spiral rakes convey material to center cone in one revolution. Ask us how these machines will save you money. Write for new bulletin No. C4A-B.

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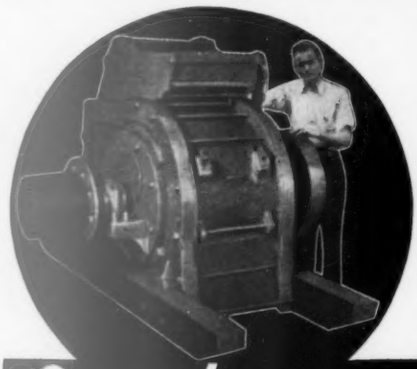


You can do more in a "DAY"

Swing Hammer PULVERIZER

Its wide crushing range makes it serve the purpose of two or more other types of crushers. Roller bearing equipped. Write for Bulletin.

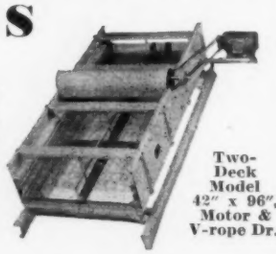
Brooks EQUIPMENT & MFG. CO.
KNOXVILLE, TENNESSEE

UNIVERSAL SCREENS

Complete line of—

Tried, Proved and Guaranteed Vibrating Screens. Since 1919, the BEST in screening equipment at the LOWEST COST.

NEW! 32-page Catalog on Screens and Screening. Just ask for Catalog No. 107.



Two-Deck Model 42" x 96", Motor & V-rope Dr.

UNIVERSAL VIBRATING SCREEN CO.
RACINE - - WISCONSIN

ROTARY KILNS
GRINDING MACHINERY
for cement, lime, ores, etc.

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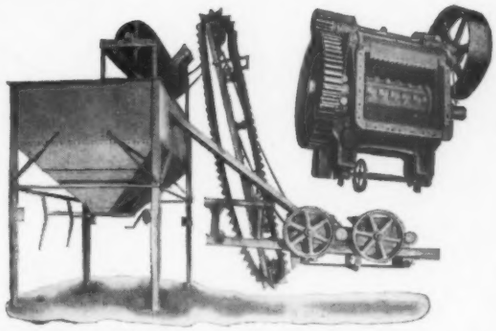
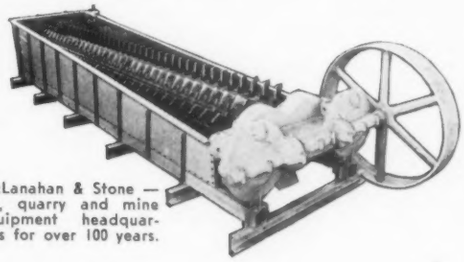
McLANAHAN

SCREENS · CRUSHERS

COMPLETE PLANTS

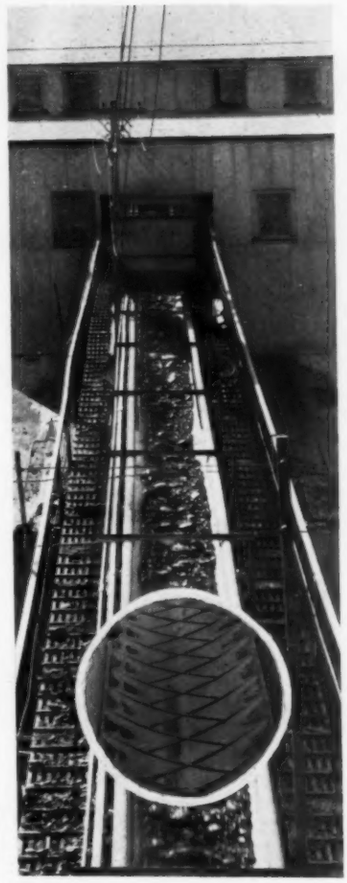


McLanahan equipment will prepare your plant for more business. Single and double roll and jaw crushers, hammermills, super dry pans—steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, jigs and hoists — complete portable, semi-portable and stationary crushing, screening and washing plants for different capacities of any material.



McLanahan & Stone — pit, quarry and mine equipment headquarters for over 100 years.

McLanahan & Stone Corp. *Established 1835* HOLLIDAYSBURG, PENNSYLVANIA



Water Trouble?

LIGHTNING

Ribbed

Conveyor Belt Will Cure It!

The Lightning Ribbed Conveyor Belt is being used where it must perform under the severest conditions. Everywhere it is proving that—

—It has yet to meet a moisture problem it could not solve.

—it carries more yardage per dollar of cost than any other belt.

—it keeps the load from slipping even on the sharpest inclines.

The
AMERICAN RUBBER
Manufacturing Co.
Factory and General Offices:
Park and Watt Streets
Oakland, California

OSGOOD

AIR CONTROL

Leads them ALL for smooth, fast and efficient shovel, dragline or crane operation.

THE OSGOOD COMPANY
MARION, OHIO

Rugged Dependability for Stiff Operating Schedules

Write for Information

Keep war production moving without delay by relying on AMERICAN Crushers, known throughout the industry for their ruggedness, low power consumption, sterling dependability. Deliver 10 to 100 tons per hour with no "time-outs." Uniform and cubical product assured.

AMERICAN PULVERIZER CO.
1059 Macklind Ave. **St. Louis, Mo.**

—STACKER—

FOR HIGH STOCK PILING OR SPOIL

165' boom—5 ton aluminum car (counter balanced).
250 HP Hoist Motor.
All electric with cab control. Caterpillar mounted with individual travel and steer motors.
Ideal for disposing of material from short-boom shovel.

Address inquiries to—

HUNTSVILLE-SINCLAIR MINING CO.
114 W. 11th St. **Kansas City, Missouri**

RECONDITIONED

TRUCK MIXER FLEET

6—4-yard Jaeger Separate Engine Drive Truck Mixers mounted on A. C. Mack trucks

2—3-yard Blaw-Knox Separate Engine Drive Truck Mixers mounted on B. F. Mack trucks —1937

2—4-yard Blaw-Knox Separate Engine Drive Truck Mixers mounted on A. C. Mack trucks

1—6-yard Jaeger Separate Engine Drive Truck Mixer mounted on Model DC 100 Autocar with dual range transmission—1940

1—Buffalo-Springfield Roller — 3-wheel, 10-ton with scarifier — Serial No. 12571—gasoline powered, 2 cylinder engine, approximate year of manufacture — 1928, approximate cost new — $4500.00, excellent condition — guaranteed, **PRICE** — F.O.B. CORONA, NEW YORK..$3500.00

1—Buffalo-Springfield Roller — 2-wheel tandem—8-ton, gasoline power conversion — Serial No. 3997, 4 cylinder gas engine, approximate year of manufacture 1920, approximate cost new — $4000, good condition—guaranteed, **PRICE**—F.O.B. CORONA, NEW YORK $2000.00

4—12-yard Heil steel dump bodies with hoists

Immediate Delivery

THE JAEGER-LEMBO MACHINE CORP.
Northern Blvd., at 127th Street
Corona, L. I., N. Y.

SAMUEL T. FREEMAN & CO. AUCTION EST. 1805

LIQUIDATION SALE

Land and Buildings
Machinery & Equipment
and Cut Stone

OF THE PLANT KNOWN AS THE

ROCK OF GIBRALTAR QUARRY

STATION ROAD

2¾ Miles East of Bethlehem Pike, Coopersburg, Pa.
(APPROX. 10 MILES SOUTH OF ALLENTOWN, PA.)

TO BE SOLD AT AUCTION IN SEPARATE LOTS

TUESDAY, JUNE 15, 1943, AT 11 A. M.

ON THE PREMISES

Approximately 30 acres of land developed Black Granite Quarry. NOTE: Rock of Gibraltar polished black granite is well favored and selected as a super building and monumental stone, taking a high permanent and attractive polish with all the enduring qualities of the gray granite.

Buildings, machinery, equipment, supplies and stone will be sold separate from the land; consist of complete procuring, handling and finishing equipment.

Structural steel, concrete block, frame and corrugated iron buildings. Marion 2-yd. Caterpillar Steam Shovel, steel boom and dipper stick; 3 steel and wooden stiff leg derricks, approx. 50 to 100 ft. with Bull Wheel and Cables; Blacksmith Shop with Drill, Sharpener, Forge, Anvil, etc. 9 Lambert, Lidgerwood Steam Hoisting Engines with Boiler and Swinging Engine; **2 Superior Horizontal Diesel Engines, single and double; Ingersoll-Rand Single Stage Air Compressor,** 14x12 in. with Air Receiver; **Wright Friction Hoist Polisher, No. 3; Patch-Wegner Co., Inc. Power Marble Gang Saw,** 9x19 ft. bed, V-belt drive; **Vox 2-Ton Overhead Traveling Crane, 28-ft. span;** Approx. 60 ft. 24" steel Boiler Bearing Conveyor; 3 Union, Yale and Reading 2 to 5-ton Chain Hoists; Vertical 150 H.P. Steam Boiler; Steam Pumps; Small Generator; Grinder; Wire; Steel Air Receivers; Steel Water Tank; Small Vertical Air Compressors; Rock Drills; Vises; Jacks and Small Tools; **Large Lot Scrap;** Approx. **25 Tons Pipe;** Large lot of Cut Stone, Polished and Unpolished, in blocks and slabs, 5-ton Mack and Packard Solid Tire Trucks.

WRITE FOR CATALOG

SAMUEL T. FREEMAN & CO.

Auctioneers

1808-10 CHESTNUT STREET, PHILADELPHIA

AIR COMPRESSORS

14x12" Chicago Pneumatic, 100 hp motor
4-cyl. Schramm, 360' with 60 hp motor, V belts
Ing.-Rand portable 275' with 50 hp Waukesha
Ing.-Rand 6x6 vertical air compressor
Curtis 2-stage, 200 lb., 11.5' with 5 hp motor

BUCKET ELEVATORS

50' elevator with 16" steel buckets on chain
40' elevator, 12" malleable buckets on chain
50' elevator with 20" malleable buckets, 2-strand chain
50' encased elevator, 10" malleable buckets on chain
25' elevator with 6" malleable buckets
30' encased elevator, 8" malleable buckets on chain
6x25' bucket elevator, 4" and 5" buckets on belt
35' continuous elevator, 30" buckets, 2-strand chain
2000' 6-ply 20" elevator belt
Gears, sprockets, elevator and driving chain
Malleable, Salem, Continuous buckets, 4" to 30"

CRUSHERS, MILLS, ROLLS

10½" x 21" New England jaw crusher
11" Traylor "Bulldog" jaw gyratory crusher
Williams No. 2 "Regular" type hammermill
Williams No. 2 "Semi Vulcanite" type hammermill
Sturtevant No. 0 Rotary Fine crusher
A-C 24x38 single roll crusher
Heavy Duty 24" x 38" roll crusher
Simplex Unit Coal Pulverizer, type 33A
Single roll 24" x 24" crusher with knobs
36" x 30" American Standard double roll crusher
18" and 24" x 30" American Standard Disintegrator

MISCELLANEOUS

8-ton Whitcomb, 36" gauge, gasoline locomotive
4-ton Vulcan, 36" gauge, gasoline locomotive
30" gauge, Mercury, storage battery locomotive
24" gauge and 20" gauge flat cars
3 electric car pullers
Generators for Hummer screens
Centrifugal water pumps, motor, bins and tanks
Revolving dryer, 4'x21' with 18" flue

CONVEYORS

30", 36" and 42" belt conveyor equipment
54", 42", 36", 20" conveyor belt
60 cast head and tail pulleys with shafts and bearings for 36" conveyor belt
Head and tail pulleys for belt conveyors
Cast iron and steel driving pulleys
Single strand 15'x5" flight conveyor 40'

SCREENS, SAND TANKS

Revolving screens, 2'x8', 3'x8', 4'x16', 5'x18'
Hummer vibrating screens, single and 2-deck
2 Jigger double deck 2'x5' vibrating screens
Plat-O 4x6 two deck vibrating screen
L-B 4'x8' single deck vibrating screen

G. A. UNVERZAGT & SONS
136 Colt St. Irvington, N. Y.

LIQUIDATION *Buy Now!*

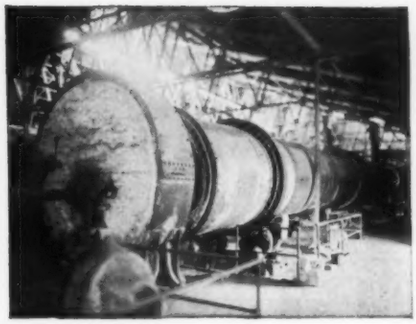
EQUIPMENT FORMERLY OWNED BY

VULCANITE *Portland Cement Co.*

ALPHA, N. J.

3 miles from Phillipsburg, N. J. and Easton, Pa.

• KILNS



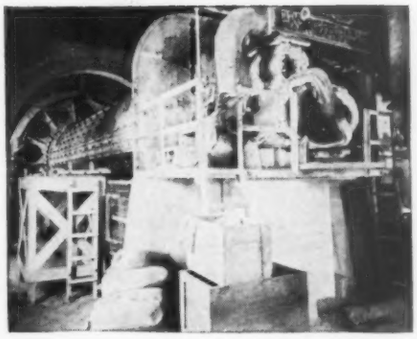
Vulcan Iron Works Steel Rotary Kilns

3—Vulcan Iron Works steel rotary kilns, 8'6"x7'6" dia., 125' long, fire brick lined.
2—Vulcan Iron Works steel rotary kilns, 7'6"x7' dia., 125' long, fire brick lined.
7—W. F. Mosser & Son steel rotary kilns, 5'6"x5' dia., 60' long, fire brick lined.

Air Compressors

1—Ingersoll-Rand 18¼"x14"x18" horizontal duplex air compressor, belted motor drive, with 3'6"x20' riveted steel air receiver.
1—Ingersoll-Rand Duplex Air Compressor, 11"x16"x18" belted motor drive.

• MILLS



Allis Chalmers 7 x 30 Tube Mill

1—Williams mill, size 3.
5—No. 8 Krupp steel ball mills, spur geared, with counter shaft.
1—Allis Chalmers Compeb Mill, complete, gear driven from counter shaft through magnetic clutch and with induced fan ventilation and dust collectors.
14—30" Griffen Mills.
1—Bradley Hercules Mill, complete with stillated die ring, feeder, counter shaft.
1—5x20 Smidth steel ball mill.
26—42" Fuller Lehigh pulverizers, each with belt idler.
3—33" Fuller Lehigh pulverizer, each with belt idler.

Steel Balls

120 tons steel balls, ¾" to 5".

Bins and Hoppers

Over 250 steel plate storage bins and hoppers, various sizes.

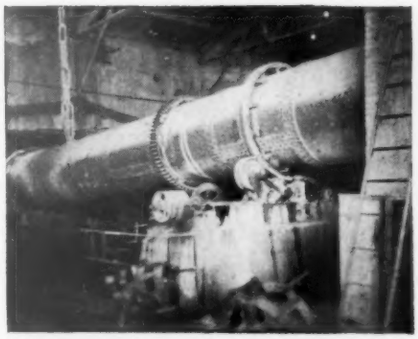
Boiler Plant

2—800 H.P. Edgemoor Boilers, 200 lb. press.
4—800 H.P. Babcock & Wilcox waste heat boilers. 200 lb. press.
4—400 H.P. Babcock & Wilcox W.T. Boilers. 200 lb. press.
All complete with blowers, feed pumps, feed water heaters, etc.

• CRUSHERS

1—Allis Chalmers Fairmont Roll Crusher, 36"x60".
2—No. 6 Gates gyratory rock crusher.
1—No. 6 McCully gyratory rock crusher, style K.
5—No. 5 Gates gyratory crushers.
1—Mosser rotary clinker crusher.
1—No. 10 McCully gyratory rock crusher with extra gear, eccentric and bell.
1—Jeffrey 24"x24" single roll coal crusher.

• DRYERS



W. F. Mosser & Son Steel Rotary Dryers with Steel Stacks

2—W. F. Mosser & Son steel rotary dryers, with 65" steel stack.
2—W. F. Mosser & Son steel rotary dryer, 72"x60" dia., 60' long, bevel gear drive, each with counter shaft and 40' steel stack.
1—W. F. Mosser & Son steel rotary dryer, 72"x60" dia., 55' long, bevel gear drive, with counter shaft and 35' steel stack.
1—W. F. Mosser & Son steel rotary dryer, 72"x60" dia., 55' long, bevel gear drive, with counter shaft and 50' steel stack.
4—Ruggles 6'x41' Rotary Dryer.
3—Ruggles 5'x30' Rotary Dryer.

Dust Collecting Systems

3—W. W. Sly Dust Collecting Systems, each with exhaust fan, 10 H.P. motor and cyclone dust collectors.

Engine Sets

6—Engine Generator Sets. 800 KW, 750 KW, 575 KW, 475 KW and two 400 KW D.C. sets.

Bucket Elevators

Thousands of feet of bucket elevators, all sizes of buckets, mostly all steel encased. New buckets and gears.

Conveyors

Rubber Belt Conveyors, 16", 20", 24".
Continuous Pan Conveyors, 18" Link Belt.
Steel Screw Conveyors, 12", 16", in steel box.
Steel Screw Conveyors, 8", in steel trough.
Canvas Belt Conveyors, 30".
Thousands of feet, all lengths.

Hoists

1—Double Drum Steam Hoist, S. Flory Mfg. Co. 11"x14" Duplex.
1—Westinghouse 60" single drum hoist.

Miscellaneous

4—Buffalo forge blowers and exhausters.
Complete Stock Room supplies, New Gears, Bearings, Belting, Safety Switches, Pumps, Shafting, and Pulleys, etc.
Thousands feet of conduit.

Representative on Premises **Phone: Phillipsburg, N. J. 5-1111**

HEAT and POWER Company, Inc.

45 BOND STREET *Phone:* **ALgonquin 4-3874** **NEW YORK, N. Y.**

EQUIPMENT AVAILABLE IMMEDIATELY

BALL AND TUBE MILLS

2—UNUSED 7'x23'9" Tube Mills, iron lined, each including 400 H.P., 3/60/2200 v. slip ring motor and starting equipment.
1—5'6x21' Smidth Tube Mill, iron lined.
2—5'x20' Bonnot Tube Mills, silex lined, cast steel heads for direct gear drive.

DIRECT HEAT ROTARY DRYERS

3—4'x30' Ruggles-Coles, now at Rochester, N. Y.
1—5'6x24' Iroquois, made by Lancaster Iron Works. At Newark, N. J.
1—5'x30' Cummer. Now at Newark, N. J.
2—6'x50' Traylor Eng. & Mfg. Co.
4—5'x40' Ruggles-Coles, single shell. Now at Boston.

RAYMOND PULVERIZERS

3—4 roll low side Mills, each with fan, cyclone, inter-connecting piping.
1—5 roll high side type, with "whizzer" separator and everything complete, including motors, steel supports, etc.

HARDINGE CONICAL BALL MILLS

1—4'6x16" iron lined, with A.C. motor and silent chain drive.
1—6'x22" iron lined, with silent chain drive, with or without motor.

ROTARY KILNS

2—8'x125' Vulcan Iron Works.
1—7' & 8'x80' Traylor.
4—5'6 x 7' x 80' Vulcan and Reeves.
1—5'x50' Vulcan.

CRUSHING ROLLS

1—20"x14" Sturtevant, full balanced type.
1—Set 36"x16" Sturtevant.
2—40"x16" Colorado Iron Works.
1—42"x16" Allis-Chalmers.

WASTE HEAT BOILER PLANT

4—750 H.P. Edgemoor Waste Heat Boilers, all ASME, last insured for 200 lbs. working pressure. Including super-heaters, economizers, fuel fans, boiler feed pumps, steel stacks, feed water heater, etc. All in one installation and in good operating condition

FOR 25 YEARS A SYMBOL OF CONFIDENCE

CONSOLIDATED PRODUCTS COMPANY, INC.
17-19 PARK ROW NEW YORK, N. Y.
Shops and Yard at Newark, N. J., cover eight acres.

LOCOMOTIVES SHOVELS — CRANES CARS

1—40 ton American 4 wheel saddle tank, standard gauge, A.S.M.E. boiler, completely rebuilt.
1—26 ton American 4 wheel saddle tank, standard gauge, A.S.M.E. boiler, completely rebuilt.
1—18 ton Porter 4 wheel saddle tank, 36" gauge, A.S.M.E. boiler, completely rebuilt.
1—70 ton American type 2-6-2 side tank locomotive, standard gauge, operating condition at present, but can rebuild if desired.

1—40 ft. steel underframe flat car, 50 ton.
1—60 ft. steel underframe flat car, 40 ton.
8—70 ft. steel underframe flat cars, 50 ton.

1—2 yard Hayward rehandling 2 line clamshell bucket, completely overhauled.

Birmingham Rail & Locomotive Co.
BIRMINGHAM, ALABAMA

Jaw Crushers—4"x8" up to 18"x36".
Crushing Rolls—16"x10" up to 54"x24".
Gyratory Crushers—No. 3, No. 12.
Ring Roll Mills—No. 0, No. 1, and No. 2.
Swing Hammer Mills.
Rotary Fine Crushers—Nos. 0, 1, 1½ and 2.
Direct Heat Rotary Dryers—3½'x25', 4'x30', 5'x30', 5½'x40', 6'x50', 7'x50' and 8'x50'.
Semi-indirect heat Dryers—5'x30' & 8½'x75'.
Cement Kilns—3' up to 8' diameter.
Hardinge, Marcy & Fuller-Lehigh Mills.
Raymond Mills—Nos. 00, 0, 1, 2 Roll.
5 new 5'x50' dryers.
Tube—Rod and Ball Mills—3' to 6' diameter.
Vibrating Screens—Air Separators.
1—C. P. T. Cos, portable gasolene eng. driven, 210 cu. ft. compressor.
New Dryers built for all purposes.

W. P. HEINEKEN
277 Fulton St., N. Y. Tel. Barclay 7-7298

READY TO GO

20 ton Link Belt, 8 wheel locomotive crane, MCB, double drums, 50' boom, code boiler, just overhauled.

1 yard shovel attachment for Northwest 105 or 104.

¾ yard shovel attachment for P&H 400.

Barber-Greene Model 42 gas, disc type bucket loader.

The Acme Equipment Company
14057 Schaefer Highway
Detroit, Michigan

REAL BARGAINS

2—Buffalo Springfield, 5 ton Gas Rollers — 3 wheel.....Each	$ 500.00
2—Plymouth 8 ton Gas Locomotives—36" Gauge .....Each	600.00
ABOVE NEED SOME REPAIRS	
8 TON—B. S. TANDEM STEAM ROLLER —GOOD CONDITION	900.00
220 FT. C. P. PORTABLE AIR COMPRESSOR	900.00
310 FT. SULLIVAN PORTABLE AIR COMPRESSOR	1350.00
ING. RAND DRILL SHARPENERS, NOS. 33 & 34.....Each	250.00
GARDNER DENVER—BROACHING DRILL	495.00
GARDNER DENVER QUARRY BAR....	400.00
14-S—(3 bag) CONCRETE MIXER.....	750.00
TEN TON THREE WHEEL ACME GAS ROLLER — SCARIFIER.....	2000.00

Service Supply Corporation
20th & Venango Sts. Philadelphia, Pa.

RAILS NEW AND RELAYING

MOST ALL SECTIONS IN STOCK also spikes, bolts, frogs, and switches available.
500 BRICK DRYER CARS
Always in the Market to buy surplus material. Send us your inventories.

M. K. FRANK
480 Lexington Ave. New York City
25 St. Nicholas Bldg. Pittsburgh, Penna.

---

1 15" portable hull electric hyd. dredge
1 6" portable hull gas. plain suction dredge
1 6 yd. Orange peel bucket
Steel spuds 36x36x70
Steel oil barge 8400 barrels
Steel oil barge 10,000 barrels
2 Steel deck scows 132x30x9

H. P. GUION
303 W. 42nd St. New York City

PUMP

Jaeger Model 353 triplex pump—Serial No. P-1963 Hercules 4 cylinder gasoline engine powered.
Mounted on 4 wheel steel frame trailer, tractor hitch.

TRIPLEX PUMP

Domestic size 3" Giant triplex pump—Powered by Continental 4 cylinder gas engine No. 512-463. Serial number of pump P 39A-2-223. Mounted on 4 wheel steel frame trailer, tractor hitch. Domestic Engine & Pump Co., Shippinsburg, Pa.

Air COMPRESSOR UNIT

Gardner Denver size 9" x 6" vertical duplex portable air compressor unit Class 4J 265 cubic ft. Powered by Buda 4 cylinder size 5¾ x 7⅛ model J V 4 gasoline engine No. 158974 steel enclosure with air receiver vertical paving.

INDUSTRIAL STEEL & SUPPLY CO.
1468 West Ninth Street Cleveland, Ohio

FOR SALE

Street Brothers Slackline Cableway: Two speed double drum Slackline hoist. 100 H.P. General Electric Slip Ring Variable Speed Motor. Mounted on Hoist with G. E. Controller, Resisters and Banked Levers. 80 ft. Steel Mast. Blocks, Cables with 1⅛ and 2 Cubic Yard Back Dump Buckets. Machine and Cables in first class condition. Reason for selling, deposit mined out. Further information gladly furnished.
DAWES SILICA MINING COMPANY
THOMASVILLE, GEORGIA

Jaw Crushers; Buchanan 12x36, Type B, Good Roads 22x50" Plain bearings.
12" Morris Dredge, Electric drive 250 HP Motor.
½ yd. P&H Model 300 Crawler Gas Shovel.
¾ yd. P&H Dragline 40' boom, ¾ yd. Bkt.
1 Yard Northwest Dragline 45' Boom 1 yd. Bkt.
4 Compartment Gravel Bin, NEW, 3 deck Simplicity Vib. Screen Gas drive.
3' x 52' Rotary Dryer, oil burner & Fan.
4'9" x 60' x 6' x 60' Dryers ½" plate.
4-8 Ton 24 x 36" Ga Gas Locomotives.
100 HP Fairbanks Morse Diesel Engine.
125 HP Venn Severin Diesel, Factory Rebuilt.
What do you need? What have you for sale?

MID-CONTINENT EQUIPMENT COMPANY
Pa 2290 710 Eastgate St. Louis, Mo.

SELL NOW — PRICES HIGH!!!
16, 20, 24 or 30 cubic yard
AIR DUMP CARS
Any quantity, type, make or location.
Also 10 to 100-ton Gas or Diesel Locos.
IRON & STEEL PRODUCTS, INC.
38 years' experience
13490 S. Brainard Ave., Chicago, Illinois
"ANYTHING containing IRON or STEEL"

FOR SALE

1—Rome Jaw Crusher size 6 x 21—New, never been used.
1—McCully Superior Gyratory Crusher size 10"—Used, needs some repairs.

WARREN BROTHERS ROADS COMPANY
38 Memorial Drive Cambridge, Massachusetts

FOR SALE

One National Double Drum Drag Line Hoist, fitted with 100 horse power, 3 phase, 60 cycle electric motor, nearly new. $2,500.00.

UNIVERSAL ROAD MACHINERY COMPANY
Kingston New York

FOR SALE

1—18 cu. ft. Stearns Cement Mixer for cement or cinder block mix.

1—7½ HP Fidelity Motor with three V-Belts attached.

1—Miles conveyor to feed Block Machine 12 ft. long. (Used only 1 yr.—in good shape).

C. J. WENTZ
310 Centennial Avenue Hanover, Pa.

USED EQUIPMENT

Available for Your 1943 Production

★

Item No. — Description

BOILERS

1 15 H.P. Upright high pressure Orr & Sembower Boiler with Grate and Hood.

BULLDOZER

1 No. 30 Caterpillar bulldozer with straight blade.
1 Allis Chalmers Model KO Diesel with Baker Straight Blade.
1 Allis Chalmers Model "M" with Bulldozer Blade & Hough High Lift—1941.

COMPRESSORS

1 100 Cu. Ft. Chicago Pneumatic Portable Compressor Gas Engine driven. Solid Rubber Tires. Serial No. 19647.
1 110 Cu. Ft. Ingersoll Portable Compressor. Mounted on steel truck with Pneumatic Tires. Serial No. PP90766. Driven by 4 cyl. Waukesha Gasoline Motor Type V143F.

CONVEYORS

1 16" Troughing Belt Conveyor 12'—6" long on steel frame with drive and motor bracket over belt. No Motor.
1 16" Troughing Belt Conveyor 7'—6" centers on steel frame. Rebuilt. No drive 6" dia. head and tail pulleys.
1 24"x44' Centers Barber Green Stationary Conveyor, with new belt and 5 H.P. Motor.
1 18"x21' Centers Link-Belt Stationary Conveyor mounted on steel frame. Troughing belt, complete with drive.
1 14" Flat Belt Conveyor 26'—6" centers. Mounted on steel frame. With new 14"—4 Ply Conveyor Belt.
1 18"x37' Conveyor on steel frame.
1 14" Belt Conveyor 8' long troughing idlers plain bearings. Wood lagged pulleys. Wood frame. With new belt.

CRANES

1 Northwestern No. 105 Crane, 55' Boom with Clam. Shovel 1¼ yd. cap. with ⅜ yd. Clam. Digging bucket 4 cyl. Twin City Gasoline Tractor Motor.
1 10 Wheel Truck Crane complete with ½ yd. Universal Crane with 24' Boom and Clam Shell.
1 Brownhoist Crawler Crane with 40' Boom, Serial 10366. Gasoline Engine Powered. ¾ yd. 21 ton.

GYRATORY CRUSHERS

1 6" Traylor Bulldog Gyratory Crusher.
1 No. 37 Kennedy Reduction Crusher with Synchronous Motor 50 H. P., 257 R.P.M., 440 Volt, complete with Starting Equipment, including Motor Generator set for excitation.
1 No. 40 Telsmith Reduction Crusher.
1 No. 10A Telsmith Primary Breaker.
1 8" Traylor Gyratory Crusher.
1 No. 10B Telsmith primary Crusher No. 1033, Special concaves for fine crushing.

HAMMER CRUSHERS

1 No. 4 Williams plain bearing hammer mill.
1 No. 101A Stover Pulverizer. Late type with ball bearings.
1 No. 15 Williams Pulverizer, Sleeve Bearing.
1 Portable Hammer Mill Feed Grinder, including 16" Dellinger Hammer Mill, late style driven by 6DT468 Buda Diesel Engine. Above with 1½ ton Molasses tank all attachments. Mounted on 1937 International truck, long wheel base.

JAW CRUSHERS

1 7"x12" NEW HOLLAND Crusher on Steel Truck.
1 9"x36" Wheeling Jaw Crusher.
1 36"x10" Type "B" Farrel Reduction Crusher.
1 13"x24" Type "B" Farrel Jaw Crusher.
1 24"x36" Farrel Jaw Crusher 15B.
1 8"x36" Acme Reduction Jaw Crusher.
1 No. 20 22"x50" Good Roads Jaw Crusher.
1 6"x12" Good Roads Jaw Crusher.
1 No. 6 Champion Jaw Crusher.
1 11"x22" Telsmith Jaw Reduction Crusher.
1 No. 4 Champion Jaw Crusher.
1 10"x20" Case Portable Jaw Crusher with collapsible elevator mounted on steel truck.

ROLL CRUSHERS

1 10"x16" Double Set NEW HOLLAND Crusher Rolls.
1 10"x16" Double Set NEW HOLLAND Roll Crushers.
1 10"x12" NEW HOLLAND 2-roll Crusher.
1 16"x16" NEW HOLLAND Roll Crusher.
1 **Complete Crushing Plant:**
1—No. 6 Champion Jaw Crusher
1—50' Centers Inclined Elevator with 18"x12"x9½" No. 10 Ga. buckets mounted on double strand chain. Wood frame
1—36"x20' Allis-Chalmers Revolving Screen. Bevel Gear Drive. Trunnion one end, stub shaft on other end
1—125 H.P. slip ring motor 690 R.P.M., 3-60-220 V. Complete with controls
1—15 ton Fairbanks Truck Scales.

DERRICK

1 15 ton Guy Derrick with 70' Lattice type boom and 80' lattice type mast.

ELEVATORS

1 70' Centers Inclined Bucket Elevator. Wood Frame, Buckets 26"x12"x10"x¼". Mounted on double strand of 6" pitch manganese chain.
1 26' Centers Inclined Bucket Elevator. Buckets 18"x10"x8" Ga. Steel. On single strand of 5" pitch chain.
1 30' Centers Inclined Bucket Elevator. Buckets 36"x17½"x15"x¼". Mounted on double strand of 6" pitch manganese chain. Wood frame.
1 No. 4 Telsmith Belt Elevator, 49' centers. Steel frame.

Item No. — Description

ELEVATORS

1 No. 4 Telsmith Belt Elevator, 55'—6" Centers. Buckets 13"x11½"x11½"x7½". No. 12 ga. with 15" belt.
1 40' Centers Jeffrey Inclined Bucket Elevator, 26"x 12"x17½" buckets with SS class steel roller chain on wood frame, buckets of ⅜" material and reinforced lip.

ENGINES

1 6D415 Buda Diesel Power Unit. Approx. 80 H.P. at 1450.
1 PD40 International 4 cyl. complete with Twin Disc Clutch and Outboard Bearing and Radiator. Serial No. PDC2394.
1 4DT212 Buda Diesel, complete with starter, battery and all necessary equipment. Approx. 52 H.P. at 1800 R.P.M.
1 4DT226 Buda Diesel, complete with starter, clutch, hood, battery.
1 K428 Buda, 81 H.P. Gasoline Motor, complete with self-starter and radiator. New block and pistons.
1 1020 International Power Unit, 4 cyl. Gasoline Engine.
1 6DT317 Buda Diesel, complete and rebuilt (Serial 5540).
1 6DT468 Buda Diesel, complete and rebuilt (Serial 4567).

New Buda Diesel Engines Available. Models 317, 389, 468. Priority rating required. Write for detailed information and bulletins.

GRADER

1 McCormick Deering Grader on Caterpillar threads—gasoline engine driven.

IDLERS

10 18"—3 Roll Troughing Idlers with 6x6 Pulleys mounted on wood sills—plain bearing.
29 30" New Link-Belt 3 Roller Troughing Idlers with anti-friction 6" rollers.
39 30" Used Robins 3-roller Troughing Idlers with anti-friction 6" rollers.
9 Used Robins 3-roller Cradle Assemblies, same as above but have no rollers.
12 Used Robins 3-roller Cradle Assemblies, same as above but have no rollers.

BOTTOM ROLLERS FOR CONVEYORS

11 New Link-Belt Bottom Rollers, 5" dia. x 33" wide plain rollers without brackets or frame.
10 Bottom Roller Assemblies (4 rollers ea.), 6" dia. x 32" wide—width of brackets 38".
17 New rollers for two preceding items—6" dia. x 4¼" wide, 1⅜" dia. hub.

LOCOMOTIVES

7 Ton Plymouth 36" gauge track. 4 cyl. Clymox motor.

MIXER

1 Jaeger Speed King. Type 7-S Trailer Mixer. Model 7DL, Serial No. 52272, 2 solid rubber tires—LeRoi engine.
1 Dodge truck 1½ ton, complete with Jaeger 2 yd. mixer with Hercules engine.

MOTORS

1 5 H.P. General Electric KT 1750 R.P.M. 1⅛ shaft ¼ KW 3-60-220 v.
1 5 H.P. General Electric KO 1750 R.P.M. 1⅛ shaft ¼ KW 3-60-220 v.
1 10 H.P. Westinghouse CCL 1120 R.P.M. 3-60-220 1⅜x⅝ KW.
1 10 H.P. Continental ball bearing 1150 R.P.M. 3-60-220 v. 1⅜ shaft ⅝ KW.
1 5 H.P. General Electric KT946 1150 R.P.M. 3-60-220 v. 1⅜x⅝.
3 25 H.P. Fairbanks Morse Type B squirrel cage—1160 R.P.M. 3-60-220 sleeve bearing.
1 40 H.P. Allis-Chalmers slip ring motor 1160 R.P.M.—3-60-220 v. type ARY220C with magnetic starting equipment. Pulley 8" dia. x 10" face—motor has adjustable base.
1 20 H.P. Western Electric 3-60-220 v. motor 1150 R.P.M. type KT312.
1 50 H.P. Westinghouse CW slip ring 690 R.P.M. 220 v. 3 ph., 60 cycle, frame 752C.
1 25 H.P. GE motor 3 ph., 60 cyc., 220 v., speed 1750 R.P.M.
2 35 H.P. Fairbanks-Morse type B squirrel cage. 870 R.P.M. 3-60-220 v. sleeve bearing.
1 35 H.P. General Electric Type I Form K Squirrel Cage—870 R.P.M. 3-60-440 v. with sliding base—sleeve bearing.
1 35 H.P. Fairbanks Morse type B Squirrel Cage. 1160 R.P.M. 3-60-220 v. Sleeve bearing.
1 40 H.P. Westinghouse type CW Slip Ring Frame 656c, 690 R.P.M.—3 ph., 60 cyc., 220 v.
1 3 H.P. Westinghouse type CS motors type 93A 3450 speed 3 ph., 60 cyc., 220 v.
1 75 H.P. General Electric slip ring motor 3 ph., type MT 356—870 R.P.M. 220 v.
1 100 H.P. Westinghouse slip ring motor 3 ph., 440 v. type CW868A, 690 R.P.M. with slide rails.
1 35 H.P. Western Electric slip ring motor 220 v., 1150 R.P.M.

PULLEYS

10 9¾" P.D. 9-C Groove V Belt Pulley. 2⅝" bore.
12 50" P.D. 9-C Groove V Belt Pulley 2⅛" bore.
1 30" dia. x 36" belt conveyor pulley with 2⅛" shaft.
2 20" dia. x 42" belt conveyor pulley with 2 7/16" shaft.
1 30" P.D. 8-C Groove V Belt Pulley 2⅛" bore.
1 18" dia. x 30" Belt Conveyor Pulley 3⅞" bore.
1 84x15 Cast Iron Solid 3⅛" bore.
1 64x12 Cast Iron Solid 3 7/16" bore.

Item No. — Description

PULVERIZERS

1 No. 16 NEW HOLLAND Limestone Pulverizer.

PUMPS

1 Worthington 1½" D8 Centrifugal pump direct connected to 1 H. P. Master 3 ph. 220/440 v. 3425 speed motor style 27611 type PA.
1 2 H. P. Peerless—3 ph., 60 cyc., 220 v. direct connected 1¼ x 1 Westco cent. pump mounted on solid base.
1 DeLaval 4" cent. pump serial No. 29183 Type P4 total head 90' speed 1740 R.P.M. cap. 350 G.P.M. Direct connected to 15 H.P. Westinghouse C. S. 361F 3-60-220/440 v.
1 Triplex pump size 4" x 4" belt driven with tight and loose pulley.
1 Rex 4" self priming cent. pump direct connected to 4 cyl. air cooled Wisconsin engine mounted on steel wheels.
1 Humdinger Pump Fig. 700-4 serial No. 1679. Powered by 2 cyl. LeRoi Gasoline Motor direct connected to 4" cent. pump mounted on steel truck.
1 Lake Wood Triplex road pump direct connected to 4 cyl. Waukesha gasoline power unit. Pump model No. 35—cyl. size 3½" x 6".

ROLLERS

1 10 ton Huber gasoline 3 wheel front roller 37½" face 43" dia. Rear Roller 20" face 64" dia. serial No. 29741. Air operated scarifier single cyl. air compressor. Sterns 4 cyl. gas motor.
1 10 Ton Huber 3 wheel front roller 37½" face—43" dia. Rear Rollers 20" face—64" dia. serial No. 2487 with air operated scarifier. Worthington single cyl. air compressor with Waukesha 4 cyl. gas motor.
1 8 ton Wehr, 3 wheel roller.
1 5 ton Buffalo Springfield—3 wheel roller model VM-16 Pneumatic Operated Scarifier 8 ft. fine grade scraper. Front wheels 36" wide, 31" dia. Rear wheels 48" dia. 18" wide. Powered by 4 cyl. Waukesha Gasoline Engine.

SAND TANKS

2 No. 6 Telsmith Sand Tanks.

SCALES

1 15 ton Howe truck scales. Platform size 9' x 18'.
1 50 Ton Fairbanks Truck Scales. Size of Platform 22' long, approx. 9' wide, serial No. E262192, main beam weight 120,000 lbs. M480.

SCOOPS

1 Large Tractor Dirt Scoop on Wheels.
2 Hell Scoops 12 yd. capacity.

SCRUBBER

1 48" x 72" Link-Belt Revolving Sand & Gravel Scrubber with Bevel Gear Drive.

SCREENS (REVOLVING)

2 40" dia. Revolving Screens 18' long. Driven by trunnion wheels. 5 H.P. 1200 speed 3-60-220 v. General Electric motor.
1 33" x 12' Revolving Screen. Stub Shaft, one end; trunnion one end. Bevel gear drive.
1 36" x 16' Good Roads Revolving Screen.

SCREEN (SCRUBBER)

1 Telsmith Rotary Scrubber Screen 32" dia. barrel 14'-6" long including scrubber section 4'-6" long. Bevel Gear Drive. Trunnions on intake end.

SCREENS (VIBRATING)

1 Good Roads 2 deck vibrating screen 36 x 72.
1 Summit 2 deck vibrating screen size 5' x 8'

SHOVELS

1 Model 27 Lorraine ½ yd. serial No. 2282 V8 Gasoline Motor—cable crowd.
1 ⅜ yd. Michigan Shovel Model AU. Serial No. 121.
1 ⅜ yd. Shovel Attachment for P. & H. Shovel.
1 ½ yd. Thew Shovel Combination—gas—25' Crane. Model No. 35.
1 ½ Yd. P. & H. Shovel. Serial No. 5771.
1 ⅝ yd. Austin Combination Shovel and 30' Crane Boom with Air Controls.
1 ¾ yd. Thew Combination Shovel and Crane with Fairleads and 45' Crane Boom. New Manganese Shovel Bucket. Serial No. 3006 4 cyl. Waukesha Gasoline Engine.
1 1¼ yd. Lorraine Shovel Model 75A Serial No. 3348.
1 ½ cu. yd. back hoe bucket for Byers Shovel. Shop No. D483 42" wide over side teeth.
1 40' Crane Boom.
1 ½ yd. Bay City Shovel Bucket.
1 ⅝ yd. Erie Clam Shell Bucket. Reconditioned.
1 1 yd. Page Drag Line Bucket.
1 46" Keystone Backhoe Bucket only with dipper stick.

SPEED REDUCERS

1 Foote Brothers Herringbone Speed Reducer. Type 8 S. H. ratio 2.57 to 1.

TRAILER

1 Kingham 35' 9 ton pole trailer with Pneumatic Tires and Pneumatic Brakes. Model BC30—rated capacity 3 ton. Serial No. 12236.

TRUCK

1 1½ Ton Chevrolet Flat Body Truck.
1 AC Mack Truck with Flat Body 18' x 8'. 1932 on Pneumatic Tires. Serial No. 4AC1CM1196. Motor No. BC4297.

SAND WASHER

1 Twin Screw Sand Washer. Steel Box. 144" x 38" x ¼" thick. Screws 14" dia.

WAGON

1 18 Cu. Yd. LaPlante Choat Rubber Tired Bottom Dump Wagon.

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SPECIAL

1—1¼ Yd. Model 650 P & H Combination Shovel and crane, Serial No. 4173, 50′ boom.
1—¾ Yd. Model 400 P & H Crawler crane, Serial No. 4136, 40′ boom.
1—⅜ Yd. Model 204 P & H Shovel, Serial No. 2302.

AIR COMPRESSORS

Portable and stationary, belt with elec. or gas power, sizes from 20 cu. ft. to 1,000 cu. ft.

CONVEYORS

1—18″x45′ Link Belt stationary conveyor, troughing belt type, elect. or gas power.
1—24″x25′ Northern portable belt conveyor elect. power.
1—14″x25′ Farquar portable scoop conveyor, gas power.

CRUSHERS

1—No. 4 Champion jaw crusher, size 9x15″, Ser. No. 2606.
1—No. 2 Climax jaw crusher, size 9x16″.
1—Buchanan jaw crusher, size 10x16″.
1—Acme jaw crusher, Ser. No. 1873, size 12x20″.
1—Acme jaw crusher, Ser. No. 1686, size 9x16″.
1—United Iron Works, "Blake-type" jaw crusher, size 9½x24″.
1—Allis Chalmers, No. 5 gyratory crusher, Ser. No. 5331, opening 10x38″.
1—Austin No. 5 gyratory crusher, Ser. No. 2945, opening 12x35½″.

DERRICKS

3—Steel Guy Derricks; 1—20-ton American-Terry 90′ mast, 110′ boom; 1—5-ton Terry Guy derrick, 70′ mast, 60′ boom; 1—5-ton Insley, 75′ mast, 80′ boom; Stiff leg derricks; 1—12 ton derrick, 75′ boom for hook work; 1—2-ton Pittsburgh, 26′ boom, 15′ mast. Also a number of wood stiff leg derricks, 1 to 5 ton cap.

HOISTS (ELEC., GAS, STEAM)

55—Electric ranging from 20 HP up to 125 HP, consisting of triple-drum, double-drum and single-drum, with AC or DC motors, some with attached swingers. Following makes: American, Clyde, Lambert, Lidgerwood and National.
Gas hoists ranging from 8 to 120 HP, single, double and triple-drums; all standard makes. (38 in stock.)
Steam, ranging from 8 HP to 60 HP, single, double and triple-drums; all standard makes.

LOCOMOTIVES

4—7 ton Plymouth type 2, Model D L 24″ gauge locomotives power gasoline engines.
3—7 ton Whitcomb type MO 24″ gauge, power gasoline engines.
1—7 ton Plymouth 24″ gauge type 2 Model HL power gasoline engine.
1—3½ ton Plymouth 24″ gauge Model A L 105 gasoline power.
1—3 ton Whitcomb 24″ gauge type U T gasoline power engine.

PUMPS (DREDGING)

1—10″ Morris sand pump, Ser. No. 86864, cap. 87 cu. yds. per hr.
1—8″ Cataract dredging pump, Ser. No. 175895, cap. 2000 GPM @ 53′ head.
1—6″ Morris dredging pump, Ser. No. 91802, cap. 1050 GPM @ 53′ head.
1—6″ Morris dredging pump, Ser. No. 180639.

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2—Fairbanks Morse Style V, Type Y, 2 cylinder, 75 HP, 300 RPM Diesels direct connected to 60 KVA, 3 phase, 220 volt, 60 cycle alternators, complete with control.
1—Fairbanks Morse Style V, Type Y, 2 cylinder, 100 HP, 257 RPM—Diesel only.
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1 Wiley Whirly Crane. Electric. 440 Volts, 75′ Boom, on wheels, good condition.
Vulcan 7 ton gas locomotive, standard gauge.
3 Western Wheel Scraper Co., 6 yd. side dump cars. Two steel, one wooden box. Std. ga.
1 Knickerbocker soft stone eliminator.
1 36″ Symons Disc Crusher, complete, with 440 V motor, belts & pulleys.
1 24″ Symons Disc Crusher, complete, with 440 V motor, belts & pulleys.
1 6″ Fairbanks figure 6, centrif. water pump, with direct conn. motor, 1000 GPM at 60′ head.
1 6″ Morris Machine Co. belt driven sand pump.
1 Jackson & Church 12 pocket brick machine.
1 24″ x 125′ belt conveyor, complete with 440 volt motor & controls.
1 24″ x 150′ belt conveyor, complete with 440 volt motor & controls.
1 30″ x 200′ belt conveyor, complete with 440 volt motor & controls.
1 Palmer Bee Speed reducer, 2 HP, Ratio 71.5 to 1. Also the following 3 phase, 60 cycle, 440 volt motors with starters, overload controls, and bases.
2 30 HP 1200 & 1800 RPM, 1—5 HP 1200 RPM, 3—3 HP, 2—1200 RPM, 1—1800 RPM, 1—1 HP 1200 RPM no base.
1 Allswede Ball Mill type Scrubber, complete with 75 HP 440 volt, slip ring motor and all shafts, gears, etc.
1 concrete Stripper block plant capable of producing 1000 8″ blocks per day with pallets, mixer, skip, and Barret hydraulic lift truck.
This is a complete gravel plant capable of producing 1000 tons of washed and screened material per day.

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1—CRUSHER, Good Roads, 10x40, roller bearing, overhead eccentric type; this crusher is in excellent condition and can be set back for 15x40 opening. With this crusher is a 30' all-steel elevator with 12" buckets. Price complete for crusher and elevator.....$4365.00
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1—GENERATOR SET, 15 KW, consisting of rebuilt 15 KW Western Electric Generator, 3 phase, 60 cycle, 480 volts, with direct connected exciter and rheostat, direct connected to new Ford-Ferguson, 4 cylinder Gasoline Power Unit, radiator cooled, complete with electric starter and batteries, all mounted on steel channel base.....$1205.00
1—GENERATOR SET, consisting of rebuilt 10 KW Northwestern Generator, 1 phase, 60 cycle, 110/220 volts, with direct connected exciter and rheostat, direct connected to new Ford-Ferguson, 4 cylinder Gasoline Power Unit, radiator cooled, complete with electric starting engine and batteries, all mounted on steel channel base.....$1450.00
1—GENERATOR SET, consisting of rebuilt 30 KVA Westinghouse Generator, 3 phase, 60 cycle, 220 volt, with belted exciter and rheostat, direct connected to rebuilt Model "LAE" Case Gasoline Power Unit, 6 cylinder, 60 HP, radiator cooled, equipped with cluteh. This machine will operate on kerosene or tractor fuel, all mounted on steel channel base.....$1750.00
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1—GENERATOR SET, consisting of rebuilt 30 KW Triumph direct current Generator, 125 volts, rheostat, direct connected with flexible coupling to new Model L-525 Buda, 6 cylinder, Gasoline Power Unit, radiator cooled, with electric starter and batteries, mounted on steel channel base.....$2270.00
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6—NEW LIGHT PLANTS, Master Model MG6, 6.3 KVA.....Each $895.00
1—CONCRETE MIXER, Jaeger Model 10L Tilting Drum, power loader, tip over tank, mounted on 4 rubber tired wheels.....$495.00
1—CONCRETE MIXER, Jaeger Model 7DL, equipped with 2 cylinder engine, power loader, skip shaker, water regulator, mounted on 2 pneumatic tired wheels.....$835.00
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1—PUMP, Jaeger Model 6P, self-priming, centrifugal, capacity 90,000 GPH, 6 cylinder engine, almost new, complete with 20 ft. of 6" suction hose, new, cost $1250.00, used ceiling price $1060.00, our price.....$795.00
3—PUMPS, Jaeger Model 4XP, self-priming, centrifugal, capacity 30,000 GPH, 4 cylinder engine, nearly new, complete with 20 ft. of 4" suction hose, new cost $556.00, used ceiling price $473.00, our price.....EACH $375.00
3—PUMPS, Jaeger Model 3XP, self-priming, centrifugal, capacity 15,000 GPH, powered by gasoline engine, complete with 20 ft. of 3" suction hose, new cost $302.00, used ceiling price $256.00, our price.....EACH $210.00
4—LIGHT PLANTS, Master Model MG6, 6.3 KVA, 4 cylinder gasoline engine, 110 volts, alternating current, latest type, same as new, new price $895.00, used ceiling price $760.00, our price.....EACH $490.00
1—LIGHT PLANT, Universal, 10 KW, 110 volt, 4 cylinder gasoline engine, electric starter and battery for starter.....$300.00
4—WAGON DRILLS, Cleveland Model DR30, very latest type, pneumatic tires, nearly new, cost new $1375.00, used ceiling price $1168.00, our price.....EACH $1020.00
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Complete Rock Crushing Sand & Gravel Plants

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42"	5	1/8"	1/16"	20"	4	1/8"	1/32"
36"	6	1/8"	1/16"	18"	4	1/8"	1/32"
30"	6	1/8"	1/16"	16"	4	1/8"	1/32"
30"	5	1/8"	1/16"	14"	4	1/16"	1/32"
24"	5	1/8"	1/32"	12"	4	1/16"	1/32"
24"	4	1/8"	1/32"				

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16"	6	10"	5	5"	5
14"	6	8"	6	4"	5
12"	6	8"	5	4"	4
12"	5	6"	6	3"	4

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	50 "	8.00
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	50 "	12.00
1¼"	25 "	7.50
	35 "	10.50
	40 "	12.00
	50 "	15.00
1½"	25 "	10.00
	35 "	14.00
	50 "	20.00

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½"	25 feet	$5.00	$1.50 Pair
	50 "	10.00	1.50 "
¾"	25 "	6.25	2.50 "
	50 "	12.50	2.50 "
1"	25 "	10.00	3.50 "
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3—12 ton Whitcomb Locos., 36" gauge. (One can be changed to Std. gauge.)
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Universal Jaw Crusher No. 824 Excellent Condition

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24 x 36 or 36 x 48 Jaw Crusher.

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4 Ft. or 5 Ft. Cone Crusher.

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50,000 Gal. Elevated Water Tank.

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1 Cummer Portable Dryer—54" Dia. x20' long	900.00
1 50 HP Farquhar Horizontal Steam Boiler National Board and ASME. Tubes—64 9'4" long x2⅝" I. D.	750.00
1 48" x 8'6" Revolving Screen	50.00
1 Asphalt Melting Kettle — Capacity 2500 Gallons. Oil Burning Type — no burner	150.00
200' 3" Steam Jacketed Asphalt Pipe Per Ft.	.35
1 Lot Miscellaneous Buckets, Chain, Drives, Piping, Valves, etc.	Cheap

All items offered subject to inspection, prior sale or other disposition.

PATTERSON EQUIPMENT COMPANY

1468 West 9th St. Cleveland, Ohio
Phone—Cherry 0439

STANHOPE OFFERS!

AIR COMPRESSORS
BELTED: 355, 528, 676, 1000, 1300 & 1570 Ft.
ELECTRIC: 478, 676, 807, 1302, 1722 & 2850 Ft.
DIESEL: 105, 315, 420, 603, 807 & 1000 Ft.
PORTABLE GAS: 110, 160, 220, 310, 540 & 1300 Ft
STEAM: 49, 310, 528, 1300 & 2200 Ft.

BUCKETS
50 Skips and Battleship Type, 2 to 6 Yds.
5 Owen & Bucyrus Rock Grabs.
CLAMSHELL: ½, ¾, 1, 1½ & 2 Yds.
ORANGE PEEL: ¾, 1, 1½, 2 & 3 Yds.
DRAGLINE: ½, ¾, 1, 1½ & 2 Yds. Cap.

CRANES & DRAGLINES
5 Ton BROWNHOIST, 30 Ft. Boom Gas.
12 Ton NORTHWEST 50 Ft. Boom Gas.
12 Ton KOEHRING 45 Ft. Boom Gas.
16 Ton Speedcrane, Gas, 50 Ft. Boom.
25 Ton BROWNING & 30 Ton AMERICAN Locomotive.
25 Ton LINK BELT K-48 Electric, 70 Ft. Boom.
2¼ Yd. Lorain Model 95, Diesel Dragline.
3 Yd. Monighan Diesel Dragline.
5 Yd. Monighan Diesel Dragline.

CATERPILLAR SHOVELS
½ Yd. P. & H. Gas & ¾ Yd. Insley Gas.
¾ Yd. KOEHRING Gasoline.
¾ Yd., 1¼ Yd., 2 Yd., 4 Yd. & 8 Yd. MARION Electrics.
1 Yd. NORTHWEST Gas & 7/8B2 Steamer.
1¼ Yd. BUCYRUS 41B Steamer.
1½ Yd. Lima 750 Diesel.
1½ Yd. KOEHRING 601—Gas.

DUMP CARS
46—KOPPEL 1½ Yd., 24 & 30 In. Ga., V Shaped.
15—2 Yd., 3 Yd., 4 Yd. 36 In. Ga.
20—Std. Ga. 12 Yd., 16 Yd., 20 Yd. & 30 Yd. Cap.

BALL, ROD AND TUBE MILLS
6x8 Continuous Pebble Mill.
5x5 Batch Mill.
5'x22" HARDINGE CONICAL Dry Ball Mill.
6'x22" HARDINGE CONICAL Pebble Mill.
4x8, 8x6, & 10x9 Straight Ball Mills.
8'x22" HARDINGE CONICAL Ball or Pebble Mill.
4x16, 5x18, 5x22, & 6x22 Tube Mills.
3½x8 & 5x7 Air Swept Tube Mills.
2x4½, 5x12 and 6x12 ROD MILLS.
4x16 Smidth Tube Mill Silex.
5½x20 Smidth Tube Mill Mang. Lining.
5½x18 F & M Tube Mill Silex.

PULVERIZERS
No. 1 Sturtevant Ring Roll.
RAYMOND Auto. Pulverizer No. 0000, 0 & 3.
RAYMOND Imp Mills No. 4, 32 & 55.
GRUENDLER XXR Mill & Jay Bee No. 3 & 4.
RAYMOND 4 & 5 ROLL MILLS & 5 Ft. Chaser Mill.

SEPARATORS AND COLLECTORS
14 ft., 8 ft. and 12 ft. Separators

ROLL CRUSHERS
36x60 Fairmont Single Roll.
36x20 Diamond Double Roll.
24x24 & 36x16 & 36x20 Diamond Double Roll.

JAW CRUSHERS
10x8, 13x7½, 14x7, 15x9, 15x10, 16x9, 16x12, 16x10, 18x11, 20x8, 20x6, 20x10, 20x12, 20x11, 26x12, 30x15, 30x13, 36x30, 36x18, 36x14, 36x15, 36x9, 36x6, 38x18, 36x10, 36x24, 42x9, 48x36, 60x42, 84x66, 36x16, 9x36.
30x10 Gruendler Roller Bearing.

CONE & GYRATORY CRUSHERS
18 in., 24 in., 30 in., 36 in. and 48 in. Symons Disc.
21K & 18N Allis Chalmers.
4—10 TZ Traylor 4 Ft. Gyratory.
4—Nos. 5, 3 & 6 Austin Gyratory.
2—Traylor T-12 Bulldog Gyratory.
8 in. Traylor T. Gyratory, Telsmith No. 9.
17 Gates K—Nos. 3, 4, 5, 6, 7½, 8 & 9½.
10 Inch Austin Model 105.
6, 10 & 13 Inch Superior McCullys.
KENNEDY: Nos. 19, 25, 27, 39 & 49.
16" Traylor.
7 Ft., 5 Ft., 4 Ft., 3 Ft. and 2 Ft. Symons Cone.

DRILLS
4—SANDERSONS 14 & LOOMIS 44.
7—Ingersoll-Rand Wagon Drills, FB & M2.
29T ARMSTRONG Well Drill.

HOISTING ENGINES
7 Gasoline 15, 40, 60 & 100 H.P.
17 Steam 7x10, 8½x10 and 10x12.
8 Electric 20, 35, 50, 60, 100 & 150 H.P.

HAMMER MILLS
4 Jeffreys: 24x18-A, 36x24-B, 42x36-E & 42x48-B.
Williams No. 1 Jumbo Jr., & No. 6 Universal.
Nos. 4, 6 & 8 Williams Jumbo.
No. 36 Am. Ring Roll.
Gruendler No. 6X.

STEEL BINS
72 Ton BLAW-KNOX 2 Compt.; also 250 ton.
100 Ton BLAW-KNOX 2 Compt.
300 Ton Johnson 3 Compt. Aggregate, 1 Compt. Cement with 2 yd. Aggregate and Cement Weigh Batcher.

SYNCHRONOUS MOTOR GENERATORS
100 K.W. RIDGWAY 3/60/2200-250-275 volt.
150 K.W. GEN. ELEC. 3/60/2200-250-275 volt.
200 K.W. RIDGWAY 3/60/2200-250-275 v., 900 rpm.

DIESEL ENGINES
60 HP Fairbanks Morse.
140 HP Fairbanks Morse.
200 HP Atlas.

DIESEL GENERATORS
240 K.W. F.M. 3/60/2300 v.
300 K.W. Worthington 3/60/2400 v.
125 K.W. F.M. 250 v. D.C.
30 K.W. Buda 110 v.

RAYMOND MILL
5 Roll High Side.

CONVEYOR PARTS
BELT: 1000 Ft. 60 In., 700 Ft. 42 In., 600 Ft. 36 In., 800 Ft. 30 In., 1642 Ft. 24 In., 517 Ft. 20 In., 297 Ft. 18 In., 1000 Ft. 14 In. & 16 In.
IDLERS: 36 In., 30 In., 24 In., 20 In., 18 In.
Head & Tail—Pulleys—Takeup for all sizes.
Steel Frames: 2,000 Ft. 24 In., 30 In. & 36 In. Sections.

ROTARY DRYERS AND KILNS
36 In. x 20 Ft., 3 Ft. x 30 Ft., 4 Ft. x 30 Ft., 54 In. x 30 Ft., 42 In. x 24 Ft., 5 Ft. x 30 Ft., 5 Ft. x 16 Ft., 5 Ft. x 60 Ft., 6 Ft. x 60 Ft., 6 Ft. x 70 Ft., 70 In. x 40 Ft., 5x30 & 8x84 Double Shell Dryers, 8x110, 7½x100, 8x125 & 10x20 Kilns.

STEEL DERRICKS
GUY: 8 Ton 85 Ft. Boom, 15 Ton 100 Ft. Boom, 20 Ton 115 Ft. Boom, 50 Ton 100 Ft. Boom.
STIFF LEG: 5 Ton 70 Ft. Boom, 15 Ton 100 Ft. Boom, 25 Ton 100 Ft. Boom, 75 Ton 135 Ft. Boom.

LOCOMOTIVES
DIESEL: 7—4½, 8 and 15 Ton 36 & 42 In. Ga.
GASOLINE: 3 Ton, 5 Ton, 8 Ton, 12, 14 & 30 Ton.
STEAM: 9 Ton, 20 Ton, 40 Ton, 60 Ton & 80 Ton.
ELECTRIC: 2 Ton, 5 Ton, 8 Ton, 17 Ton & 40 Ton.

SCREENS
VIBRATING: 2x4, 3x6, 2x8, 3x8, 3x5, 4x5, 4x8, 4x10, 48x72. HUMMER, ROTEX, NIAGARA & ROBINS, LINK BELT & HURON.
REVOLVING: 3x12, 3x16, 3½x18, 3x24, 4x16, 4x20, 4x23, 4x24, 5x30, 5x20, 6x20.

STEEL STORAGE TANKS
35—4000, 5000, 6000, 8000, 10000, 15000 and 20000 gal. cap. Horizontal and Vertical.
50000 gal. on 100 ft. tower.
60000 gal. on 85 ft. tower.
100000 gal. on 100 ft. tower.

RAILROAD CARS
12—50 Ton Cap. Battleship Gondolas.
7—50 Ton Cap. Flat Cars.

SAUERMAN DRAG AND SLACKLINES
1—¾ yd. Gas 1—1½ yd. Electric
1—1 yd. Electric 3—2 yd. 3 yd. & 4 yd. Electric

R. R. TRACK SCALE
125 Ton 56' x 10'6" Platform 4 Section.

WHIRLEY CRANES
5 Clyde 75 to 100 Ft. Boom.

DRILL SHARPENERS
5 I.R. 4K Shank Grinders.
6 Ingersoll-Rand 54, 40, 50 & 34's.
7 Sullivan Class A, & C.
8 Gardner-Denver 3A & No. 6DS.

MINE LOADERS
5 Eimco, GD. & Conway.

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Lincoln Bldg., 60 E. 42nd St., New York, N. Y
Murray Hill 2-3075 or 2-3076

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MODERN RECONDITIONED EQUIPMENT

FOR SALE WITHOUT PRIORITY

CRUSHERS - SCREENS

2' SYMONS Coarse Bowl
15x24 Jaw Crusher
36"x48" Jeffrey Spike Rolls
48"x12' 2 Deck SYMONS Screen
48"x6' 1 Deck SYMONS Screen
42"x18" Trommel Screen

PAVING EQUIPMENT

3000 lb. Portable Asphalt Plant with Dryer-Scales-Motors
BARBER GREENE Travel Plant Heavy Duty—nearly new
BLAW-KNOX Cement Finisher Double Screed-Gas Electric

Also Scales—Road Rollers—Batch Bins—Conveyors

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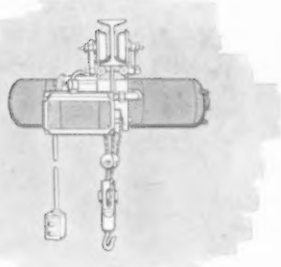
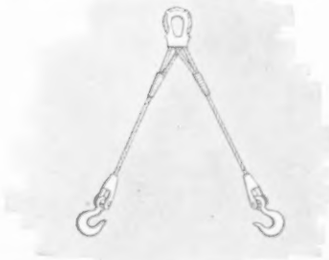
Salient POINTS IN CMP Re: Buying Wire Rope

WHEN BUYING WIRE ROPE FOR INCLUSION IN A PRODUCT YOU ARE MAKING,



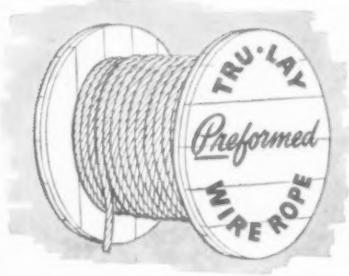
REMEMBER: Wire rope is a Controlled Material • Your orders should bear the abbreviated allotment numbers—such as: W-8-20 • Preference ratings on orders bearing allotment numbers are valueless. Wire rope producers are required to fill authorized controlled materials orders without regard to preference ratings • The allotment number on a wire rope order must show the actual month of delivery and *not* the quarter in which delivery is required.



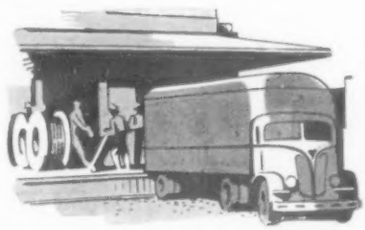
WHEN BUYING WIRE ROPE ASSEMBLIES,

REMEMBER: Assemblies consisting of wire rope and fittings are Class B if they are air-borne, but Class A if they are not • If Class A, you must furnish us with an allotment of the steel required for the wire rope, and for the fittings if they are also class A • If Class B, you must not furnish an allotment of steel for either the fittings or the rope • In either case, your orders must bear allotment numbers or they cannot be considered delivery orders for products containing controlled material.

WHEN BUYING WIRE ROPE FOR MAINTENANCE, REPAIRS, OR OPERATING SUPPLIES,



REMEMBER: Subject to the limitations imposed upon you by any "P" order under which you may be required to operate, and provided you produce a product or are engaged in any business in Schedules I or II of CMP Reg. 5, the symbol MRO on a wire rope order, followed by any appropriate certification, makes your order an authorized controlled material order, and • A preference rating is not required, because wire rope is a controlled material • Just be sure to observe the quantity restrictions stated in Par. (f), CMP Reg. 5.



WHEN BUYING WIRE ROPE IN SMALL QUANTITIES FROM WAREHOUSES,

REMEMBER: You don't need an allotment number or a preference rating for wire rope if • **1**—You order in amounts of $10 or less, • or **2**—If you don't buy more than 4,000 pounds per calendar quarter, or • **3**—If you are authorized to buy it under Food Production Order 3 • Just be certain that you don't exceed the inventory limitations stated in CMP Reg. 2 • Certify your orders as stated in CMP Reg. 4.

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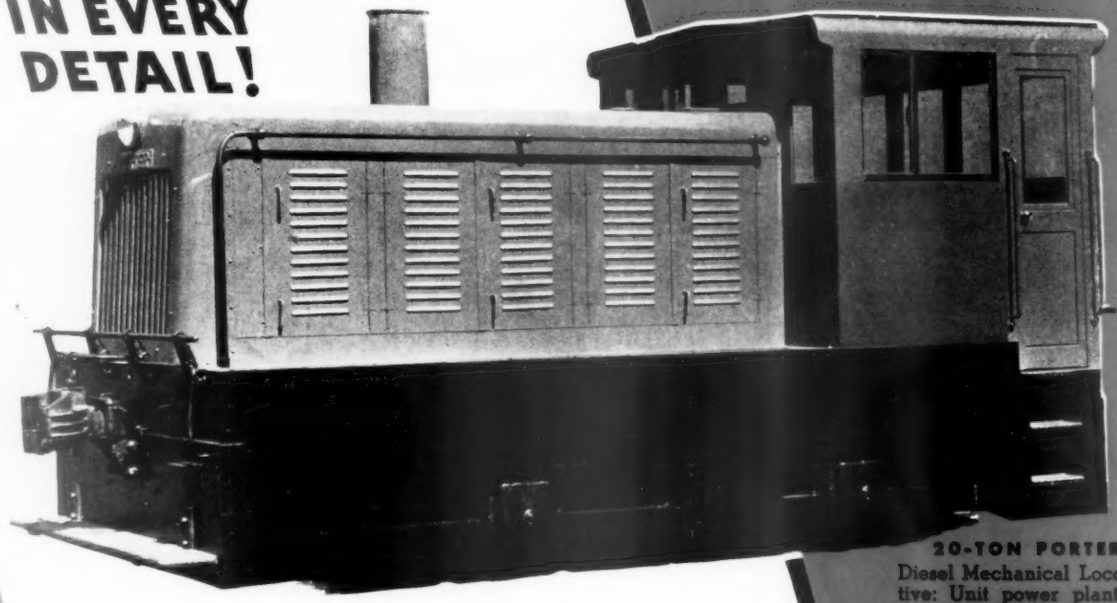

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